NATIONAL SCIENCE FOUNDATION SUBMISSIONS TOOLKIT

NSF Proposal and Award Policies and Procedures Guide, NSF 17-1, effective January 30, 2017

The purpose of this toolkit is to provide a basic understanding of the components and/or requirements of an NSF proposal submission. Note that these are general instructions and specific programs or types of proposals may require deviation from these standard instructions. In all cases, it is very important to review the applicable Request for Proposal (RFP), Program Announcement (PA) or Solicitation to which you are responding.

The December 2016 Tiger Tips Article provides a summary of the changes effective January 2017

Auburn University
Proposal Services and Faculty Support
January 2017

Contents

National Science Foundation - FastLane Account Request Form

Please complete the following form and return to the appropriate Contract Administrator or College-level designee.

You may copy this information in the body of the e-mail message. The form, per se, is not required.

(If you currently have an NSF Account from a previous institution, please provide your NSF ID# and the name of your previous institution. If you do not know your NSF ID#, you may look it up via the Fastlane home page using the NSF ID lookup tool. Fastlane will forward you an e-mail with your NSF ID#).

NSF ID: _____

Previous Institution Name: _____

1. Last Name: _____ First Name: _____
   Middle Name or Initial: _____

2. Title: _____

3. Highest Degree: _____ and Year Conferred: _____

4. Institution: **Auburn University**

5. Department: _____

6. E-mail Address: _____

7. Business Phone: _____

8. FAX Number: _____

Note: Your Fastlane Account will be set up with an NSF ID. That number will be reflected in the confirmation letter you will receive electronically from NSF Fastlane. Please use that number when signing into Fastlane.

NSF General Formatting Instructions

The proposal must be easily readable and must conform to these requirements. Individual program solicitations may require deviations from any of the formatting requirements mentioned below.

Proposal Type: Upon entering the proposal preparation site in FastLane the proposer must indicate if the proposal is collaborative and the type of proposal being developed.

Page Size: 8.5" x 11"

Page Numbers: Each section of the proposal should have page numbers. Each section should be numbered individually.

Fonts:

• Arial, Courier New, or Palatino Linotype 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.

Other Formatting Requirements:

• No more than six lines of text per vertical inch
• Margins, in all directions, must be at least one inch
• One column per page
• Line Spacing: Single- or double-spaced at discretion of the proposer

A font size of less than 10 points may 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. PIs are cautioned, however, that the text must still be readable.

FastLane Compliance Check

• FastLane will run an automated compliance check on all proposals prior to submission. If any sections of a proposal are missing, or page numbers exceeded, the proposal will not be accepted. You must upload documents that contain the phrase "*not applicable*" as placeholders for sections for which you do not have content.

• Exceptions: collaborative proposals, letters of intent, and pre-applications. Check with your program web site or program officer if you have questions.

• **The compliance check will verify inclusion of these documents:**

- Cover Sheet
- References Cited
- Budget
- Budget Justification
- Facilities, Equipment, and Other Resources
- Project Summary
- Project Description
- Biographical Sketches
- Current and Pending Support
- Data Management Plan
- Postdoctoral Mentoring Plan *(as applicable)*

NSF Project Summary

Each proposal must contain a summary of the proposed project not more than one page in length. The Project Summary consists of an overview, a statement on the **intellectual merit** of the proposed activity, and a statement on the **broader impacts** of the proposed activity.

The overview includes a description of the activity that would result if the proposal were funded and a statement of objectives and methods to be employed. The statement on intellectual merit should describe the potential of the proposed activity to advance knowledge. The statement on broader impacts should describe the potential of the proposed activity to benefit society and contribute to the achievement of specific, desired societal outcomes.

The Project Summary should be 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.

Proposals that do not contain the Project Summary, including an overview and separate statements on intellectual merit and broader impacts will not be accepted by FastLane or will be returned without review.

The Project Summary may **ONLY** be uploaded as a Supplementary Document if use of special characters is necessary. Such Project Summaries must be formatted with separate headings for Overview, Intellectual Merit and Broader Impacts. Failure to include these headings will result in the proposal being returned without review.

NSF Project Summary Template

Overview:

Begin with a brief, abstract-like description of the proposed project followed by these two sections with bolded headings.

Intellectual Merit:

• How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields?
• How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of prior work.)
• To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts?
• How well conceived and organized is the proposed activity?
• Is there sufficient access to resources?

Broader Impact:

• How well does the activity advance discovery and understanding while promoting teaching, training, and learning?
• How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geography, etc.)?
• To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships?
• Will the results be disseminated broadly to enhance scientific and technological understanding?
• What may be the benefits of the proposed activity to society?

Additional information related to broader impacts can be found in the July 2013 Tiger Tips

Page Limit: 1 page, 4,600 characters including spaces and headings. The proposer may determine how many characters to use in each text box, but the sum of characters across the three text boxes must not exceed 4,600.

NOTE: Due to the way FastLane counts characters and spaces, it is recommended that you limit your Project Summary to 4,500 characters, including spaces and headings. The Project Summary may not exceed one page. You must shorten your Project Summary if it exceeds one page when printed in FastLane, regardless of the number of characters and spaces. Check your program announcement for special instructions about the Project Summary word or character limits.

NSF Project Description

Page Limit: 15 Pages *(unless deviation approved by announcement/solicitation)*

The Project Description should provide a clear statement of the work to be undertaken and must include the objectives for the period of the proposed work and expected significance; the relationship of this work to the present state of knowledge in the field, as well as to work in progress by the PI under other support.

The Project Description should outline the general plan of work, including the broad design of activities to be undertaken, and, where appropriate, provide a clear description of experimental methods and procedures. Proposers should address what they want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified. These issues apply to both the technical aspects of the proposal and the way in which the project may make broader contributions.

The Project Description must contain, as a separate section within the narrative, a section labeled "Broader Impacts." This section should provide a discussion of the broader impacts of the proposed activities. Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to the project. NSF values the advancement of scientific knowledge and activities that contribute to the achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the US; and enhanced infrastructure for research and education.

Page Limitations and Inclusion of Uniform Resource Locators (URLs) within the Project Description

Brevity will assist reviewers and Foundation staff in dealing effectively with proposals. Therefore, the Project Description (including Results from Prior NSF Support, which is limited to five pages) **may not exceed 15 pages**. Visual materials, including charts, graphs, maps, photographs and other pictorial presentations are included in the 15-page limitation. PIs are cautioned that the Project Description must be self-contained and that URLs **must not** be used because: 1) the information could circumvent page limitations; 2) the reviewers are under no obligation to view the sites; and 3) the sites could be altered or deleted between the time of submission and the time of review.

Conformance to the 15-page limit will be strictly enforced and may not be exceeded unless a deviation has been specifically authorized.

Results from Prior NSF Support

If any PI or co-PI identified on the project has received NSF funding with a start date in the past five years (including any current funding and no cost extensions), information on the award(s) is required for each PI and Co-PI, regardless of whether the support was directly related to the proposal or not. In cases where the PI or co-PI has received *more than one award* (excluding amendments to existing awards), they need only report on the one award most closely related to the proposal. Funding includes not just salary support, but any funding awarded by NSF. NSF awards such as standard or continuing grants, Graduate Research Fellowship, Major Research Instrumentation, travel, conference, and center awards, etc., are subject to this requirement.

The following information **must** be provided:

(a) NSF award number, amount and period of support;

(b) Title of the project;

(c) Summary of the results of the completed work, including accomplishments, supported by the award. The results must be separately described under two distinct headings, Intellectual Merit and Broader Impacts;

(d) Publications resulting from the NSF award (a complete bibliographic citation for each publication must be provided either in this section or in the References Cited section of the proposal); if none, state "No publications were produced under this award;"

(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) If the proposal is for renewed support, a description of the relation of the completed work to the proposed work.

If the project was recently awarded and therefore no new results exist, describe the major goals and broader impacts of the project. Note that the proposal may contain up to five pages to describe the results. Results may be summarized in fewer than five pages, which would give the balance of the 15 pages for the Project Description.

Unfunded Collaborations

Any substantial collaboration with individuals not included in the budget should be described in the Facilities, Equipment and Other Resources section of the proposal and documented in a letter of collaboration from each collaborator. Such letters should be provided in the supplementary documentation section of the FastLane Proposal Preparation Module and follow the required format instructions specified in the PAPPG (Chapter II.C.2.i).

Group Proposals

NSF encourages submission of proposals by groups of investigators; often these are submitted to carry out interdisciplinary projects. Unless stipulated in a specific program solicitation, however, such proposals will be subject to the 15-page Project Description limitation established in Section (ii) above. PIs who wish to exceed the established page limitations for the Project Description must request and receive a deviation in advance of proposal submission.

Proposals for Renewed Support

A proposal for renewed support may be either a "traditional" proposal in which the proposed work is documented and described as fully as though the proposer were applying for the first time; or, an "Accomplishment-Based Renewal" (ABR) proposal, in which the Project Description is replaced by copies of no more than six reprints of publications resulting from the research supported by NSF during the preceding three to five year period; information on human resources development at the postdoctoral, graduate and undergraduate levels; and a brief summary (not to exceed four pages) of plans for the proposed support period. All other information required for NSF proposal submission remains the same.

It must be clearly indicated in the proposal that it is an ABR submission and the box for "Accomplishment-Based Renewal" must be checked on the proposal Cover Sheet. ABR proposals may not be submitted for consecutive renewals.

PIs are advised that the ABR is a special type of renewal proposal appropriate only for an investigator who has made significant contributions, over a number of years, in the area of research addressed by the proposal. Investigators are strongly urged to contact the cognizant NSF Program Officer prior to developing a proposal using this format.

References

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

Proposers must be especially careful to follow accepted scholarly practices in providing citations for source materials relied upon when preparing any section of the proposal. While there is no established page limitation for the references, this section must include bibliographic citations only and must not be used to provide parenthetical information outside of the 15-page Project Description.

Budget Preparation Guidance

Refer to the budget section in the NSF Proposal and Award Policies and Procedures Guide, (Section II-C(2)(g)) for full information about allowable budget categories and NSF guidelines for budget preparation. Auburn University budget specific information is available in the OSP Proposal Submission Guide. If the program solicitation does not require a budget and therefore there is no budgetary information to justify, insert text or upload a document in the budget justification section of the proposal that states, "*Not Applicable*."

Biographical Sketch Instructions

Page Limit: 2 pages (per individual)

Senior Personnel

A biographical sketch (limited to two pages) is required for each individual identified as senior project personnel. NSF defines senior project personnel as follows:

(1) (co) PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR (PI/PD) means the individual(s) designated by the proposer, and approved by NSF, who will be responsible for the scientific or technical direction of the project. NSF does not infer any distinction in scientific stature among multiple PIs, whether referred to as PI or co-PI. If more than one, the first one listed will serve as the contact PI, with whom all communications between NSF program officials and the project relating to the scientific, technical, and budgetary aspects of the project should take place. The PI and any identified co-PIs, however, will be jointly responsible for submission of the requisite project reports. The term "Principal Investigator" generally is used in research projects, while the term "Project Director" generally is used in centers, large facilities, and other projects. For purposes of this Guide, PI/co-PI is interchangeable with PD/co-PD.

(2) Faculty Associate (faculty member) -- an individual other than the Principal Investigator(s) considered by the performing institution to be a member of its faculty or who holds an appointment as a faculty member at another institution, and who will participate in the project being supported.

Do not submit personal information such as home address; home telephone, fax, or cell phone numbers; home e-mail address; date of birth; citizenship; drivers' license numbers; marital status; personal hobbies; and the like. Such personal information is irrelevant to the merits of the proposal. NSF is not responsible or in any way liable for the release of such material.

The following information must be provided in the order and format specified below.

(a) Professional Preparation

A list of the individual's undergraduate and graduate education and postdoctoral training (including location) as indicated below:

Undergraduate Institution(s)	Location	Major	Degree & Year
Graduate Institution(s)	Location	Major	Degree & Year
Postdoctoral Institution(s)	Location	Area	Inclusive Dates (years)

(b) Appointments

A list, in reverse chronological order, of the individual's academic/professional appointments beginning with the current appointment.

(c) Products

A list of: (i) up to five products most closely related to the proposed project; and (ii) up to five other significant products, whether or not related to the proposed project. 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. Only the list of ten will be used in the review of the proposal.

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 other Persistent Identifier.

If only publications are included, the heading "Publications" may be used for this section.

(d) Synergistic Activities

A list of 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. Examples could include, among others: innovations in teaching and training (e.g., development of curricular materials and pedagogical methods); 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.

In FastLane, biographical sketches for senior personnel may no longer be grouped together and uploaded in a single PDF file associated with the PI. Each individual's biographical sketch must be uploaded as a single PDF file associated with that individual.

Collaborators & Other Affiliations Information

The following information regarding collaborators and other affiliations must be separately provided for each individual identified as senior project personnel:

Collaborators and co-Editors. A list of all persons in alphabetical order (including their current organizational affiliations) who are currently, or who have been collaborators or co-authors with the individual on a project, book, article, report, abstract or paper during the 48 months preceding the submission of the proposal. Also include those individuals who are currently or have been co-editors of a journal, compendium, or conference proceedings during the 24 months preceding the submission of the proposal. If there are no collaborators or co-editors to report, this should be so indicated.

Graduate Advisors and Postdoctoral Sponsors. A list of the names in alphabetical order by last name of the individual's own graduate advisor(s) and principal postdoctoral sponsor(s), and their current organizational affiliations, if known.

Ph.D. Advisor. A list of all persons with whom the individual has had an association as a Ph.D. advisor.

The information is used to help identify potential conflicts or bias in the selection of reviewers.

NOTE: Collaborators & Other Affiliations Information is now submitted as a **Single Copy Document** for each individual identified by the organization as senior personnel, rather than being included in the Biographical Sketch format. The new format no longer requires proposers to identify the total number of collaborators and other affiliations when providing this information. The Collaborators and Affiliations section is set up like the Biosketch section, with a field/upload for each Key/Senior Personnel (with a separate upload for each senior personnel listed).

Current and Pending Support

Page Limit: None

This section of the proposal calls for required information on all current and pending support for ongoing projects and proposals, **including this project**, and any subsequent funding in the case of continuing grants. All current project support from whatever source (e.g., Federal, State, local or foreign government agencies, public or private foundations, industrial or other commercial organizations or internal funds allocated toward specific projects) must be listed. The proposed project and all other projects or activities requiring a portion of time of the PI and other senior personnel must be included, even if they receive no salary support from the project(s). The total award amount for the entire award period covered (including indirect costs) must be shown as well as the number of person-months per year to be devoted to the project, regardless of source of support. Similar information must be provided for 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 to this policy is delineated in GPG Chapter I.G.2.

If the project now being submitted has been funded previously by a source other than NSF, the information requested in the paragraph above must be furnished for the last period of funding.

NOTE: In FastLane, current and pending support for all senior personnel may no longer be grouped together and uploaded in a single PDF file associated with the PI. Each individual's current and pending support must be uploaded as a single PDF file or inserted as text associated with that individual.

Current and Pending Support Format

(List any pending or current support or your plans to submit this current proposal to another agency in the future according to the following instructions)

• List pending support first, including the proposal being submitted with this application; then current

• List most recent item first-reverse chronological order

• List all current/active awards and all pending awards. Do not list awards that have closed or those that have been rejected.

• Pending Support – List all awards you have applied for that have not been awarded or rejected at the time of the current application. Provide all the requested information for each award.

• **Proposal currently being submitted is listed first for all NSF applications**

• Current Support – List all active awards. Do not list grants that have closed or been rejected. Provide all the requested information for each award.

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 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 cost sharing as defined in 2 CFR § 200.306, 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. If there are no Facilities, Equipment and Other Resources to describe, insert text or upload a document in this section of the proposal that states, "*Not Applicable*."

Template

Page Limit: None

Instructions: *Identify the facilities to be used at each performance site listed and, as appropriate, indicate their capacities, pertinent capabilities, relative proximity, and extent of availability to the project. Use "Other" to describe the facilities at any other performance sites listed and at sites for field studies. If a category does not apply to your project, please mark it not applicable (N/A).*

Laboratory:
Clinical:
Animal:
Computer:
Office:
Other:
Major Equipment:

List the most important items available for this project and, as appropriate identify the location and pertinent capabilities of the items.

Other Resources:

Provide any information describing the other resources available to the project. Identify support services such as key personnel not mentioned in the budget and budget justification, consultant, secretarial, machine shop, and electronics shop, and the extent to which they will be available for the project. Include an explanation of any consortium/contractual arrangements with other organizations.

NSF Data Management Plan

Page Limit: 2 pages

Data management plans should address these five issues:

1. The type of data, samples, physical collections, software, curriculum materials and other materials to be produced during the course of the project.

2. The standards to be used for data and metadata format and content.

3. Policies for access and sharing including provisions for appropriate protection of privacy, confidentiality and security, intellectual property or other rights or requirements.

4. Policies and provisions for re-use, re-distribution and production of derivatives.

5. Plans for archiving data, samples and other research products, and for preservation of access to them.

Data management requirements and plans specific to the Directorate, Office, Division, Program, or other NSF unit, relevant to a proposal are available at: http://www.nsf.gov/bfa/dias/policy/dmp.jsp.

If guidance specific to the program is not available, then the requirements established in the Data Management Plan of the *NSF Grant Proposal Guide* apply.

Simultaneously submitted collaborative proposals and proposals that include subawards are a single unified project and should include only one supplemental combined Data Management Plan, regardless of the number of non-lead collaborative proposals or subawards included.

FastLane will not permit submission of a proposal that is missing a Data Management Plan.

Proposals for supplementary support to an existing award are not required to include a Data Management Plan.

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. Proposers who feel that the plan cannot fit within the supplement limit of two pages may use part of the 15-page Project Description.

Proposers are advised that the Data Management Plan may not be used to circumvent the 15-page Project Description limitation. The Data Management Plan will be reviewed as an integral part of the proposal, coming under Intellectual Merit or Broader Impacts or both, as appropriate for the scientific community of relevance.

Additional information related to Data Management Plans can be found in the March 2012 Tiger Tips.

An NSF-Specific Data Management Plan (DMP) template is available on the Proposal Services and Faculty Support website.

Postdoctoral Researcher Mentoring Plan

Page Limit: 1 Page

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. In no more than one page, 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. Proposers are advised that the mentoring plan may not be used to circumvent the 15-page project description limitation.

When submitting collaborative proposals one Postdoctoral Researcher Mentoring Plan is submitted that contains the information needed for all institutions that include postdoctoral researchers in their proposals. Please refer to the section on Collaborative Proposals for more information on collaborative proposal submissions.

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.

Sample Postdoctoral Researcher Mentoring Plan

[Note: The following mentoring plan is provided as an example; however, the specific mentoring plan a PI develops should fit the project, the department's goals, and the needs of the postdoctoral researcher(s) to be mentored.]

One postdoctoral researcher will be funded on this project. The postdoctoral researcher's development will be enhanced through a program of structured mentoring activities. The **goal** of the mentoring program will be to provide the skills, knowledge and experience to prepare the postdoctoral researcher to excel in his/her career path. To accomplish this goal, the mentoring plan will follow the guidance of the National Academies of Science and Engineering on how to enhance the postdoctoral experience, by providing a structured mentoring plan, career planning assistance, and opportunities to learn a number of career skills such as writing grant proposals, teaching students, writing articles for publication and communication skills. [1]

Specific elements of the mentoring plan will include:

• Working with the postdoctoral researcher to establish and implement an **Individual Development Plan** based on the process developed by the FASEB [2]

• Seminars, workshops and individual consultations on **how to identify research funding opportunities and write competitive proposals**

• Participation in seminars and workshops on **teaching and learning**, as well as access to a teaching mentoring program

• Opportunities to **network with visiting scholars who are leaders in our field** by having lunch or dinner with them when they participate in the school's visiting speaker series

• Participation in a **journal club** for graduate students and postdocs, in which participants meet weekly, along with a faculty facilitator, to discuss and critique recent journal articles in the field and to discuss how to write and submit journal articles

• Travel to at least **two conferences each year** [name conferences here] (travel funds are included in the budget), with the goal that the postdoctoral fellow present a poster or paper at the conference

• Participation in a monthly brown bag lunch series for postdoctoral fellows and graduate students in our school, in which speakers will be invited to discuss subjects related to **career development** such as how to apply for a faculty position, career paths outside of academia, tips for negotiating salary and start-up funds, how to plan an independent research agenda, etc.

• Participation in the PI's weekly research group meetings, in which members will be expected to present their research regularly, and feedback and coaching will be given to help all members to **develop their communication and presentation skills**

Success of this mentoring plan will be assessed by tracking the progress of the postdoctoral fellow through her/his Individual Development Plan, interviews of the postdoctoral fellow to assess satisfaction with the mentoring program, and tracking of the postdoctoral fellow's progress toward his/her career goals after finishing the appointment.

[1] National Academy of Science, National Academy of Engineering, Institute of Medicine, "Enhancing the Postdoctoral Experience for Scientists and Engineers: A Guide for Postdoctoral Scholars, Advisers, Institutions, Funding Organizations, and Disciplinary Societies," National Academies Press, 2000.

[2] The Federation of American Societies for Experimental Biology, "Individual Development Plan for Postdoctoral Fellows,"

[3] November 2014 Tiger Tips

NSF Collaborative Proposals

A collaborative proposal is one in which investigators from two or more organizations wish to collaborate on a unified research project. Collaborative proposals may be submitted to NSF in one of two methods: as a single proposal, in which a single award is being requested (with subawards administered by the lead organization); or by simultaneous submission of proposals from different organizations, with each organization requesting a separate award. In either case, the lead organization's proposal must contain all of the requisite sections as a single package to be provided to reviewers (that will happen automatically when procedures below are followed).

All collaborative proposals must clearly describe the roles to be played by the other organizations, specify the managerial arrangements, and explain the advantages of the multi-organizational effort within the Project Description. PIs are strongly encouraged to contact the cognizant NSF Program Officer prior to submission of a collaborative proposal.

a. Submission of a collaborative proposal from one organization

The single proposal method allows investigators from two or more organizations who have developed an integrated research project to submit a single, focused proposal. A single investigator bears primary responsibility for the administration of the grant and discussions with NSF, and, at the discretion of the organizations involved, investigators from any of the participating organizations may be designated as co-PIs. Please note, however, that if awarded, a single award would be made to the submitting organization, with any collaborators listed as subawardees.

If a proposed subaward includes funding to support postdoctoral researchers, the mentoring activities to be provided for such individuals must be incorporated in the supplemental mentoring plan.

By submission of the proposal, the organization has determined that the proposed activity is administratively manageable. NSF may request a revised proposal, however, if it considers that the project is so complex that it will be too difficult to review or administer as presented.

b. Submission of a collaborative proposal from multiple organizations

Simultaneous submission of proposals allows multiple organizations to submit a unified set of certain proposal sections, as well as information unique to each organization. The lead organization is required to submit a Project Summary, Project Description, References Cited, Data Management Plan, and Postdoctoral Mentoring Plan (if applicable) for all organizations in the collaborative. Other sections must be submitted by each organization in the collaborative. All collaborative proposals arranged as separate submissions from multiple organizations must be submitted via FastLane. For these proposals, the project title must begin with the words "Collaborative Research:." If funded, each investigator bears responsibility for a separate award.

Required sections of the proposal differ based on the organization's role. The following sections are required for a collaborative proposal submitted by:

Lead Organization	**Non-Lead Organization**
Cover Sheet	Cover Sheet
Project Summary	Table of Contents (automatically generated)
Table of Contents (automatically generated)	Biographical Sketch(es)
Project Description	Budget and Budget Justification
References Cited	Current and Pending Support
Biographical Sketch(es)	Facilities, Equipment and Other Resources
Budget and Budget Justification	Collaborators and Other Affiliations Information
Current and Pending Support	
Facilities, Equipment and Other Resources	
Data Management Plan	
Postdoctoral Mentoring Plan (if applicable)	
Collaborators and Other Affiliations Information	

FastLane will combine the proposal submission for printing or electronic viewing.

To submit the collaborative proposal, the following process must be completed:

(i) Each non-lead organization must assign their proposal a proposal PIN. This proposal PIN and the temporary proposal ID generated by FastLane when the non-lead proposal is created must be provided to the lead organization before the lead organization submits its proposal to NSF.

(ii) The lead organization must then enter each non-lead organization(s) proposal PIN and temporary proposal ID into the FastLane lead proposal by using the "Link Collaborative Proposals" option found on the FastLane "Form Preparation" screen. Given that such separately submitted proposals constitute a "single" proposal submission to NSF, it is imperative that the proposals be submitted within a reasonable timeframe to one another.

(iii) **All components** of the collaborative proposal must meet any established deadline, and, failure to do so may result in the entire collaborative proposal being returned without review.

Additional information related to collaborative proposals can be found in the June 2014 Tiger Tips.

Grants for Rapid Response Research (RAPID)

The RAPID funding mechanism is used for proposals having a severe urgency with regard to availability of, or access to data, facilities or specialized equipment, including quick-response research on natural or anthropogenic disasters and similar unanticipated events. PI(s) must contact the NSF program officer(s) whose expertise is most germane to the proposal topic before submitting a RAPID proposal. This will facilitate determining whether the proposed work is appropriate for RAPID funding.

• The Project Description is expected to be brief (no more than five pages) and include clear statements as to why the proposed research is of an urgent nature and why a RAPID award would be the most appropriate mechanism for supporting the proposed work. Note that while proposal preparation instructions deviate from the standard proposal preparation instructions contained in this Guide; RAPID proposals must otherwise be compliant with the GPG.

• The "RAPID" proposal type must be selected in the proposal preparation module in FastLane.

• Only internal merit review is required for RAPID proposals. Under rare circumstances, program officers may elect to obtain external reviews to inform their decision. If external review is to be obtained, then the PI will be so informed in the interest of maintaining the transparency of the review and recommendation process. The two standard National Science Board-approved merit review criteria will apply.

• Requests may be for up to $200K and of one year duration. The award size, however, will be consistent with the project scope and of a size comparable to grants in similar areas.

• No-cost extensions, and requests for supplemental funding, will be processed in accordance with standard NSF policies and procedures.

• Renewed funding of RAPID awards may be requested only through submission of a proposal that will be subject to full external merit review. Such proposals would be designated as “RAPID renewals.”

EArly-concept Grants for Exploratory Research (EAGER)

The EAGER funding mechanism may be used to support exploratory work in its early stages on untested, but potentially transformative, research ideas or approaches. This work may be considered especially "high risk-high payoff" in the sense that it, for example, involves radically different approaches, applies new expertise, or engages novel disciplinary or interdisciplinary perspectives. These exploratory proposals may also be submitted directly to an NSF program, but the EAGER mechanism should not be used for projects that are appropriate for submission as “regular” (i.e., non-EAGER) NSF proposals. PI(s) must contact the NSF program officer(s) whose expertise is most germane to the proposal topic prior to submission of an EAGER proposal. This will aid in determining the appropriateness of the work for consideration under the EAGER mechanism; this suitability must be assessed early in the process.

• The Project Description is expected to be brief (no more than eight pages) and include clear statements as to why this project is appropriate for EAGER funding, including why it does not “fit” into existing

programs and why it is a “good fit” for EAGER. Note that while proposal preparation instructions deviate from the standard proposal preparation instructions contained in this Guide; EAGER proposals must otherwise be compliant with the GPG.

• The "EAGER" proposal type must be selected in the proposal preparation module in FastLane.

• Only internal merit review is required for EAGER proposals. Under rare circumstances, program officers may elect to obtain external reviews to inform their decision. If external review is to be obtained, then the PI will be so informed in the interest of maintaining the transparency of the review and recommendation process. The two standard NSB-approved merit review criteria will apply.

• Requests may be for up to $300K and up to two years in duration. The award size, however, will be consistent with the project scope and of a size comparable to grants in similar areas.

• No-cost extensions, and requests for supplemental funding, will be processed in accordance with standard NSF policies and procedures.

• Renewed funding of EAGER awards may be requested only through submission of a proposal that will be subject to full external merit review. Such proposals would be designated as “EAGER renewals.”

Research Advanced by Interdisciplinary Science and Engineering (RAISE)

RAISE is a type of proposal that may be used to support bold, interdisciplinary projects whose:

•Scientific advances lie in great part outside the scope of a single program or discipline, such that substantial funding support from more than one program or discipline is necessary.

•Lines of research promise transformational advances.

•Prospective discoveries reside at the interfaces of disciplinary boundaries that may not be recognized through traditional review or co-review.

To receive funding as a RAISE-appropriate project, all three criteria must be met. RAISE is not intended to be used for projects that can be accommodated within other types of proposals or that continue well established practices. Prospective PIs must receive approval to submit a proposal from at least two NSF Program Officers, in intellectually distinct programs, whose expertise is most germane to the proposal topics.

Contingent on Program Officers' approval to submit a proposal:

•RAISE proposals must be compliant with Part I of the PAPPG unless a deviation from the standard proposal preparation instructions is indicated below.

•NSF will not accept collaborative RAISE proposals for a single project submitted separately from multiple organizations. A multi-organization RAISE project must be submitted as a single proposal requesting a single award with subawards administered by the lead organization.

•The RAISE proposal type must be selected in the proposal preparation module in FastLane.

•The project title will be preceded by the prefix "RAISE:."

•Email documentation from at least two NSF Program Officers confirming approval to submit a proposal must be uploaded under "RAISE – Program Officer Concurrence Emails" in the Supplementary Documentation section of FastLane.

•Requests may be for up to $1,000,000 and up to five years in duration. The award size and duration will be consistent with the project scope.

•The proposal must explicitly address how the project is better suited for RAISE than for a regular NSF review process.

•Only internal merit review is required for RAISE proposals. Program Officers may elect to obtain external reviews to inform their decision. If external review is to be obtained, then the PI will be informed in the interest of maintaining the transparency of the review and recommendation process.

•The two standard NSB-approved merit review criteria will apply. The interdisciplinary and transformative potential of the project will be evaluated within the intellectual merit of the proposal.

•On the basis of the review criteria, the cognizant Program Officers will decide whether to recommend a RAISE proposal for co-funding from their programs.

•No-cost extensions and requests for supplemental funding will be processed in accordance with standard NSF policies and procedures.

•There are no renewals for RAISE awards.

Grant Opportunity for Academic Liaison with Industry (GOALI)

GOALI is a type of proposal that seeks to stimulate collaboration between academic research institutions and industry. Under this proposal type, academic scientists and engineers request funding either in conjunction with a regular proposal submitted to a standing NSF program or as a supplemental funding request to an existing NSF-funded award. GOALI is not a separate program; GOALI proposals must be submitted to an active NSF funding opportunity and must be submitted in accordance with the deadlines specified therein. A proposer interested in submitting a GOALI proposal or a GOALI supplemental funding request to an existing NSF-funded award must contact the cognizant NSF Program Officer listed in the relevant funding opportunity prior to submission. Special interest is focused on affording opportunities for:

•Interdisciplinary university-industry teams to conduct collaborative research projects, in which the industry research participant provides critical research expertise, without which the likelihood for success of the project would be diminished;

•Faculty, postdoctoral fellows, and students to conduct research and gain experience in an industrial setting; and

•Industrial scientists and engineers to bring industry's perspective and integrative skills to academe.

GOALI proposals should focus on research that addresses shared interests by academic researchers and industrial partners. The research should further scientific and engineering foundations to enable future breakthrough technologies with the potential to address critical industry needs. Industry involvement assures that the research is industrially relevant. Principal Investigators are expected to integrate their research objectives with educational and industrial needs.

Interdisciplinary research and education projects that enable faculty from different academic departments or institutions to interact with one or more industrial partners in industry-university groups or networks are encouraged. Proposals may include the participation of a "third partner" such as a National Laboratory or a non-profit organization. NSF funding can be used for university research/education activities and may support activities of faculty and their students and research associates in the industrial setting. NSF funds are not permitted to be used to support the industrial research partner.

GOALI proposals and supplemental funding requests are reviewed by the program to which the proposal is submitted. In addition to any program-specific review criteria defined in the solicitation, reviewers may be asked to evaluate the degree and extent to which industry will be involved with the proposed research and the extent to which students and/or post-doctoral researchers will benefit from the interaction. The proposed research should be transformative, beneficial to industry, and further collaboration between the academic and industrial partners.

Specific instructions for each type of request are provided below.

a. Requests as part of a competitive proposal submission

(i) GOALI proposals must follow the deadlines applicable to an existing funding opportunity as well as the following GOALI-specific requirements: The title of a GOALI proposal should start with "GOALI:" (after any other title requirements specified by the funding opportunity to which the proposal is being submitted);

(ii) At least one industrial co-PI must be listed on the Cover Sheet at the time of submission although the industrial participant cannot use or receive any NSF funds;

(iii) The university-industry interaction should be described in the Project Description;

(iv) A GOALI-Industrial PI Confirmation Letter from the industrial partner that confirms the participation of a co-PI from industry must be submitted with the proposal (if applicable, the letter also must state the

degree of industrial participation as well as detail any support that the industry is providing to the academic partner). All GOALI-related confirmation must be uploaded under "GOALI-Industrial PI Confirmation Letter" in the supplementary documentation section of FastLane. This supplementary documentation will not be counted towards the 15-page Project Description limitation; and

(v) Academic and industry partners should agree in advance as to how intellectual property (IP) rights will be handled. A signed university-industry agreement on IP (including publication and patent rights) must be submitted prior to issuance of an award. NSF will review this agreement to ensure that the graduation of students will not be unduly affected. NSF is responsible neither for the agreement reached nor the IP information exchanged between the academic institution and the industrial partner.

b. Supplemental funding requests to existing NSF awards

Supplemental funding requests to add GOALI elements to a currently funded NSF research project should be submitted by using the "Supplemental Funding Request" function in FastLane. Such requests should include a brief description of the proposed activity, a budget and a budget justification, in addition to items (iii)-(v) above. At least one industrial participant must be included in the GOALI activity and must be specified in the GOALI-Industrial PI Confirmation Letter. The industrial participant cannot use or receive any NSF funds.

IDEAS Lab Proposal

"Ideas Lab" is a type of proposal to support the development and implementation of creative and innovative project ideas that have the potential to transform research paradigms and/or solve intractable problems. An Ideas Lab may be run independently, or in parallel, with the issuance of an NSF funding opportunity on the same topic. These project ideas typically will be high-risk/high-impact, as they represent new and unproven ideas, approaches and/or technologies. This mechanism was developed collaboratively within NSF, modeled on the "sandpit" workshops that are a key component of the United Kingdom Research Council's "IDEAs Factory" program.

The Ideas Lab type of proposal is implemented using the four-stage process described below:

a. Stage 1: Selection of Panelists

There are two separate panels convened for an Ideas Lab: a selection panel and an Ideas Lab panel. The role of the selection panel is to provide advice on the selection of participants. The role of the Ideas Lab panel is to provide an assessment of the project ideas developed during the Ideas Lab. The individuals selected to participate in each of these panels are subject matter experts for the specific topic of the Ideas Lab. All panelists are barred from receiving any research funding through, or in any other way collaborating on, the particular Ideas Lab in which they are involved.

b. Stage 2: Selection of Participants

A "call for participants" solicitation that describes the specific focus of the Ideas Lab will be issued. The solicitation will specify the content and submission instructions for such applications.

The Project Description is limited to two pages and should include information regarding the applicant's specific expertise and interest in the topic area, as well as certain personal attributes that enhance the success of the Ideas Lab workshop (e.g., experience and interest in working in teams, communication skills, level of creativity, willingness to take risks). Applicants also must include a Biographical Sketch and Current and Pending Support information (both of which must be prepared in accordance with standard NSF formatting guidelines). All other elements of a "full proposal" are waived (i.e., Project Summary, References Cited, Budget and Budget Justification, Facilities, Equipment and Other Resources). The application must be submitted as a preliminary proposal in FastLane. No appendices or supplementary documents may be submitted.

Applicants are notified electronically of NSF's decision regarding whether they are invited or not invited to participate in the Ideas Lab. Applicants will be informed about the context of the review and the criteria that were used to assess the applications in the form of a panel summary, but will not receive individual reviews or other review-related feedback.

c. Stage 3: Ideas Lab

The agenda and duration of the Ideas Lab are communicated to meeting participants by the cognizant NSF Program Officer. Typically, Anonymous real-time peer review involving the participants and the Ideas Lab panel is incorporated into the workshop format, providing iterative constructive feedback during the development of project ideas. The Ideas Lab concept incorporates a "guided creativity" process, thus the use of a facilitator(s) is included, both to guide the creation of interdisciplinary teams and the creative development of ideas, and to ensure that the workshop progresses in a productive manner. At the end of the Ideas Lab, the Ideas Lab panel will provide a consensus report summarizing their evaluation of each project idea. The recommendations of the Ideas Lab panel are advisory to NSF. Within seven to fourteen days following the Ideas Lab, the NSF Program Officers will determine which project ideas are meritorious and should be invited as full proposals. At the NSF Program Officers' discretion (subject to Division Director concurrence), they may invite none, some, or all of the project ideas as full proposals, with the final funding decision to occur after the full proposals have been received and reviewed. Invited full proposals (which are prepared in accordance with standard research proposal formatting guidelines) must be submitted within two months of receiving NSF notification after the Ideas Lab.

d. Stage 4: Review and recommendation of full proposals

Invited proposals will be reviewed internally by the cognizant NSF Program Officers, the Ideas Lab panelists, and other external reviewers, as appropriate. Resulting awards will be administered in accordance with standard NSF policies and procedures, including no-cost extensions and supplemental funding requests. Renewed funding of an Ideas Lab award may be requested only through submission of

a full proposal that will be subject to external merit review. Such proposals would be designated as an "Ideas Lab renewal."

Facilitation Awards for Scientists and Engineers with Disabilities (FASED)

As part of its effort to promote full utilization of highly qualified scientists, mathematicians, and engineers, and to develop scientific and technical talent, the Foundation has the following goals:

•to reduce or remove barriers to participation in research and training by persons with physical disabilities by providing special equipment and assistance under awards made by NSF; and

•to encourage persons with disabilities to pursue careers in science and engineering by stimulating the development and demonstration of special equipment that facilitates their work performance.

Persons with disabilities eligible for facilitation awards include PIs, other senior personnel, and graduate and undergraduate students. The cognizant NSF Program Officer will make decisions regarding what constitutes appropriate support on a case-by-case basis. The specific nature, purpose, and need for equipment or assistance should be described in sufficient detail in the proposal to permit evaluation by knowledgeable reviewers.

There is no separate program for funding of special equipment or assistance. Requests are made in conjunction with regular competitive proposals, or as a supplemental funding request to an existing NSF award. Specific instructions for each type of request are provided below.

a. Requests as part of a competitive proposal submission

Funds may be requested to purchase special equipment, modify equipment or provide services required specifically for the work to be undertaken. Requests for funds for equipment or assistance that compensate in a general way for the disabling condition are not permitted. For example, funds may be requested to provide: prosthetic devices to manipulate a particular apparatus; equipment to convert sound to visual signals, or vice versa, for a particular experiment; access to a special site or to a mode of transportation (except as defined below); a reader or interpreter with special technical competence related to the project; or other special-purpose equipment or assistance needed to conduct a particular project. Items, however, such as standard wheel chairs, prosthetics, hearing aids, TDD/text-phones, or general readers for the blind would not be supported because the need for them is not specific to the proposed project. Similarly, ramps, elevators, or other structural modifications of research facilities are not eligible for direct support under this program.

No maximum funding amount has been established for such requests. It is expected, however, that the cost (including equipment adaptation and installation) will not be a major component of the total proposed budget for the project. Requests for funds for special equipment or assistance to facilitate the participation of individuals with disabilities should be included in the proposed budget for the project

and documented in the budget justification. The specific nature, purpose and need for such equipment or assistance should be described in sufficient detail in the Project Description to permit evaluation of the request by knowledgeable reviewers.

b. Supplemental funding requests to existing NSF grants

Supplemental funds for special equipment or assistance to facilitate participation in NSF-supported projects by persons with disabilities may be requested under existing NSF grants. Normally, title is vested in the grantee organization for equipment purchased in conjunction with NSF-supported activities. In accordance with the applicable grant terms and conditions, the grantee organization guarantees use of the equipment for the specific project during the period of work funded by the Foundation, and assures its use in an appropriate manner after project completion. In instances involving special equipment for persons with disabilities, the need for such may be unique to the individual. In such cases, the grantee organization may elect to transfer title to the individual to assure appropriate use after project completion.

Supplemental funding requests should be submitted by using the "Supplemental Funding Request" function in FastLane and should include a brief description of the request, a budget and a budget justification. Requests must be submitted at least two months before funds are needed. Funding decisions will be made on the basis of the justification and availability of program funds with any resultant funding provided through a formal amendment of the existing NSF grant.

Important NSF Resources

NSF FastLane Help System

NSF FastLane Home Page

NSF FastLane Login Page

Active Funding Opportunities (Upcoming Due Dates)

NSF Find Funding

NSF Merit Review

NSF Proposal and Award Policies and Procedures Guide, 17-1, January 2017