Archaeology Program - Doctoral Dissertation Research Improvement Awards (Arch-DDRI)

PROGRAM SOLICITATION
NSF 15-554

REPLACES DOCUMENT(S):
NSF 14-566

National Science Foundation

Directorate for Social, Behavioral & Economic Sciences
Division of Behavioral and Cognitive Sciences

Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):

Proposals Accepted Anytime

IMPORTANT INFORMATION AND REVISION NOTES

The only change in this new solicitation concerns the number of permissible student proposal submissions that are allowed. The previous Archaeology Program Doctoral Dissertation Research Improvement Awards (Arch-DDRI) solicitation (NSF-14-566) had the following information in the Eligibility Information section under the Limit on Number of Proposals per PI or Co-PI.

> "There are no limitations on the number of DDRI proposals that can be submitted to the Archaeology program by an advisor or other faculty member functioning as the PI over the course of her/his career.
>
> A doctoral student may submit only two DDRI proposals to the Archaeology program to support their dissertation research during her/his lifetime."

In this new solicitation, the above text was replaced with:

> "There are no limitations on the number of DDRI proposals that may be submitted by an organization on behalf of a single faculty member during a specific competition or over the course of her/his career. But an organization may submit only two proposals (an original submission and if necessary a resubmission) over a student's career, barring special dispensation from the Archaeology Program for a second resubmission. Such dispensations are rare; they are exclusively at the discretion of the Archaeology Program Officer."

Important Information

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 18-1), which is effective for proposals submitted, or due, on or after January 29, 2018.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Arch - Doctoral Dissertation Research Improvement Awards (Arch-DDRI)

Synopsis of Program:

The Archaeology Program supports anthropologically relevant archaeological research. This means that the value of the proposed research can be justified within an anthropological context. The Program sets no priorities by either geographic region or time period. It also has no priorities in regard to theoretical orientation or question and it is the responsibility of the applicant to explain convincingly why these are significant and have the potential to contribute to anthropological knowledge. While the Program, in order to encourage innovative research, neither limits nor defines specific categories of research type, most applications either request funds for field research and/or the analysis of archaeological material through multiple approaches. The Program also supports methodological projects which develop analytic techniques of potential archaeological value.

Cognizant Program Officer(s):

Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.

- John E. Yellen - Program Director, telephone: (703) 292-8759, email: jyellen@nsf.gov
- Don Rimon - Program Analyst, telephone: (703) 292-2960, email: drimon@nsf.gov

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.075 --- Social Behavioral and Economic Sciences

Award Information

Anticipated Type of Award: Standard Grant

Estimated Number of Awards: 45 to 50

During a fiscal year, the Archaeology Program expects to recommend a total of 45 to 50 Doctoral Dissertation Research Improvement (DDRI) awards.

Anticipated Funding Amount: $1,000,000 to $1,200,000

The anticipated funding amount per fiscal year is $1,000,000 to $1,200,000 pending availability of funds. Project budgets should be developed at scales appropriate for the work to be conducted. DDRI awards may not exceed $20,000 in allowable direct costs for the entire duration of the award. Indirect costs are in addition to this maximum direct cost limitation and are subject to the awardee's current Federally negotiated indirect cost rate. The maximum project duration is 36 months.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Universities and Colleges - doctoral degree granting universities and colleges accredited in, and having a campus located in, the US acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.

Who May Serve as PI:

DDRI proposals must be submitted with a principal investigator (PI) and a co-principal investigator (Co-PI) who is the dissertation student. The PI must be the advisor of the doctoral student or another faculty member at the U.S. university where the doctoral student is enrolled.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or Co-PI:

There are no limitations on the number of DDRI proposals that may be submitted by an organization on behalf of a single faculty member during a specific competition or over the course of her/his career. But an organization may submit only two proposals (an original submission and if necessary a resubmission) over a student's career, barring special dispensation from the Archaeology Program for a second resubmission. Such dispensations are rare; they are exclusively at the discretion of the Archaeology Program Officer.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required
- **Full Proposals:**
  - Full Proposals submitted via FastLane: *NSF Proposal and Award Policies and Procedures Guide* (PAPPG) guidelines apply. The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.
  - Full Proposals submitted via Grants.gov: *NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov* guidelines apply (Note: The *NSF Grants.gov Application Guide* is available on the Grants.gov website and on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide).

B. Budgetary Information

- **Cost Sharing Requirements:**

  Inclusion of voluntary committed cost sharing is prohibited.

- **Indirect Cost (F&A) Limitations:**

  Not Applicable

- **Other Budgetary Limitations:**

  Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. submitter's local time):

  Proposals Accepted Anytime

Proposal Review Information Criteria

Merit Review Criteria:

National Science Board approved criteria apply.

Award Administration Information

Award Conditions:

Standard NSF award conditions apply.

Reporting Requirements:

Standard NSF reporting requirements apply.

TABLE OF CONTENTS

I. INTRODUCTION

As part of its effort to encourage and support projects that explicitly integrate education and basic research, the Archaeology Program provides support to enhance and improve doctoral dissertation projects conducted by doctoral students enrolled in U.S. universities in anthropologically significant archaeology. Projects in other fields which directly contribute to this goal are also eligible for consideration. Enrollment in an anthropology or archaeology doctoral program is not required.

This solicitation provides instructions for preparing proposals for Doctoral Dissertation Research Improvement (DDRI) awards to the Archaeology Program. It replaces instructions that had been included in the Social, Behavioral, and Economic Sciences (SBE) Doctoral Dissertation Research Improvement Grant (SBE-DDRIG) announcement (NSF 11-547) and the Archaeology Program Doctoral Dissertation Research Improvement Awards (Arch-DDRI) solicitation (NSF 14-566).

The Archaeology Program supports anthropologically relevant archaeological research. This means that the value of the proposed research can be justified within an anthropological context. The Program sets no priorities by either geographic region or time period. It also has no priorities in regard to theoretical orientation or question and it is the responsibility of the applicant to explain convincingly why these are significant and have the potential to contribute to anthropological knowledge. While the Program, in order to encourage innovative research, neither limits nor defines specific categories of research type, most applications either request funds for field research and/or the analysis of archaeological material through multiple approaches. The Program also supports methodological projects which develop analytic techniques of potential archaeological value.

II. PROGRAM DESCRIPTION

Through its competitive grants competitions, the Archaeology Program of the U.S. National Science Foundation (NSF) seeks to advance basic understanding and methods in the study of anthropologically focused archaeology.

The Archaeology Program expects that the research it supports will draw upon and enhance fundamental theory in anthropologically based archaeology, and it will encourage and support potentially transformative research that has potential larger-scale, longer-term significance for both basic understanding and for societal benefit.

Although the Archaeology Program frequently engages in co-review of regular research proposals with other NSF programs, it does so far less frequently with DDRI proposals. Co-review entails multiple programs coordinating the review of a single project proposal. Doctoral students and their advisors who believe that their work might be appropriate for joint review are encouraged to contact program officers for all programs they think might have interest in their work well in advance to coordinate timing and to assess whether co-review is a viable option.

Doctoral dissertation research improvement (DDRI) awards provide support to enhance and improve the conduct of doctoral dissertation projects conducted by doctoral students enrolled in U.S. universities who are conducting scientific research that enhances basic scientific knowledge. As noted in the title of the awards, DDRI awards are meant to improve the conduct of the dissertation research. All DDRI proposals recommended for funding by the Archaeology Program must clearly demonstrate how the proposed research will contribute to the advancement of the basic science of anthropological archaeology.

DDRI awards provide funding for research costs not normally covered by the student's university. Examples of the kinds of expenses that may be included in a DDRI proposal budget are the following (please note that this list is illustrative and not inclusive):

- Costs associated with travel and related expenses to conduct research at field sites, archives, specialized collections, and/or facilities away from the student's campus.
- Costs for equipment necessary for the conduct of the project that will be devoted to the project over the duration of the award. (Note that any equipment purchased with NSF funds becomes property of the awardee organization.)
- Costs for materials and supplies required for the conduct of the project.
- Costs associated with archaeological field survey and excavation.
- Costs for dating and analysis of archaeologically relevant materials.
- Costs for archiving, preservation and public access to primary data.

Costs that cannot be reimbursed by DDRI awards include the following:

- A stipend or salary for the doctoral student or advisor. (Note that salaries or payments for work by other individuals whose assistance is essential to the conduct of the project may be permitted when there is sound justification for such expenses.)
- Costs for tuition, textbooks, or other items not directly related to the conduct of dissertation research.
- Publication costs for articles based on the dissertation, except when the university's degree requirements permit the substitution of published research results for a free-standing dissertation
- Costs for travel of the dissertation advisor(s) to the field site and/or professional meetings.

Although most grants are for a shorter time period, DDRI awards may be up to three years in duration. The dissertation does not have to be completed during that time period, but costs associated with research activities to be reimbursed with DDRI funds must be incurred while the award is active.

III. AWARD INFORMATION

Anticipated Type of Award: Standard Grant

Estimated Number of Awards:45 to 50

During a fiscal year, the Archaeology Program expects to recommend a total of 45 to 50 Doctoral Dissertation Research Improvement (DDRI) awards.

Anticipated Funding Amount: $1,000,000 to $1,200,000

The anticipated funding amount per fiscal year is $1,000,000 to $1,200,000 pending availability of funds. Project budgets should be developed at scales appropriate for the work to be conducted. DDRI awards may not exceed $20,000 in allowable direct costs for the entire duration of the award. Indirect costs are in addition to this maximum direct cost limitation and are subject to the awardee's current Federally negotiated indirect cost rate. The maximum project duration is 36 months.

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Universities and Colleges - doctoral degree granting universities and colleges accredited in, and having a campus located in, the US acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.

Who May Serve as PI:

DDRI proposals must be submitted with a principal investigator (PI) and a co-principal investigator (Co-PI) who is the dissertation student. The PI must be the advisor of the doctoral student or another faculty member at the U.S. university where the doctoral student is enrolled.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or Co-PI:

There are no limitations on the number of DDRI proposals that may be submitted by an organization on behalf of a single faculty member during a specific competition or over the course of her/his career. But an organization may submit only two proposals (an original submission and if necessary a resubmission) over a student's career, barring special dispensation from the Archaeology Program for a second resubmission. Such dispensations are rare; they are exclusively at the discretion of the Archaeology Program Officer.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG). The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg. Paper copies of the PAPPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the *NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov*. The complete text of the *NSF Grants.gov Application Guide* is available on the Grants.gov website and on the NSF website at: (https://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. PAPPG Chapter II.D.3 provides additional information on collaborative proposals.

See PAPPG Chapter II.C.2 for guidance on the required sections of a full research proposal submitted to NSF. Please note that the proposal preparation instructions provided in this program solicitation may deviate from the PAPPG instructions.

For the following listed items/sections of the proposal, instructions specific to DDRI proposals under this solicitation are presented:

1. **Cover Sheet**
   - Begin the Project Title with, “Doctoral Dissertation Research:”, followed by a substantive subtitle, which should describe the project in concise, informative language so that a scientifically or technically literate reader could understand what the project is about.
   - Select the specific number of this Arch-DDRI solicitation in the section labeled Program Announcement/Solicitation.
   - Verify that the NSF Unit of Consideration is "BCS-DDRI Archaeology
   - List the primary dissertation advisor as the PI and list the doctoral student (and other advisors, only if highly appropriate to the conduct of the research) as Co-PI(s) in the Remainder of the Cover Sheet section. (Note that identification of an individual as a PI or co-PI means that they will have administrative responsibility for an award based on the proposal.)

2. **Project Description**

   The Archaeology Program limits the Project description to 10 single-spaced pages of text plus an additional five pages of figures. One may decrease the number of text pages to increase figure pages but not the reverse. The "Results from Prior Support" section is not required. Otherwise, applicants should follow the PAPPG for other general proposal preparation guidelines.

   As specified in Chapter II, Section C.2.d of the PAPPG and in the comparable section of the NSF Grants.gov Application Guide, the project description should be a clear statement of the work to be undertaken.

   To be competitive for funding by the Archaeology Program, the project description should provide clear descriptions of relevant literature and theoretical frameworks within which the project is set, a complete description of the research methods that will be used, and discussion of the expected intellectual merit and broader impacts that may result from the project.

3. **Biographical Sketches**

   Biographical Sketches must be included for both the student and the dissertation advisor(s) and conform to the PAPPG specifications. In addition, the biographical sketch for the student should include a statement about the student’s current academic status and degree progress; a separate letter concerning the student's academic status is not required. Do not submit transcripts or letters of reference.

4. **Other Supplementary Docs**

   Letters of Collaboration

   If the research project includes a significant component requiring the involvement of another institution, commitment of a laboratory, foreign government or other individual it is recommended that the proposal include a letter (or letters) of collaboration in the Supplementary Documents section. The content of the letter(s) should be limited to a brief description of the committed facilities or resources. Letters of recommendation are not allowed. The Program recognizes that permits to conduct research in non-US countries are often not issued until funding has been secured. Research projects must be in compliance with all relevant US law and regulations.

   Letters of Collaboration (either written as letters or as free-standing e-mail messages) from individuals and/or organizations that will work with the doctoral student and/or provide in-kind support for the proposed project may be included as supplementary documents. Such letters are not needed from other individuals at the student's university or from that university.

   Letters of collaboration should be brief and focus on the willingness of the letter's author to collaborate or provide in-kind support for the project in ways that have been outlined in the project description. Such letters should not argue for support of the project by articulating in greater detail what activities the collaborator will undertake and/or by elaborating reasons for supporting the project. Applicants will be required to remove inappropriate letters before their application is sent to reviewers.

   Signed Statement from the Principal Investigator

   The advisor or other faculty member serving as the principal investigator (PI) of the proposal is now required to submit a signed statement affirming that the student will be able to undertake the proposed research soon after a DDRI award is made. In addition, the PI must affirm that she/he has read the proposal. The following template must be used to prepare this statement, with changes permitted only to provide information where there are blank lines in the template. Additional text is not permitted. The statement must be signed by the PI.

   Required template for a statement signed by the PI:

   To: NSF Archaeology Program

   From: _____
   [Insert name of the PI]

   By signing below, I affirm that the doctoral student is at a stage in her/his graduate program that makes it very likely that the student will be able to undertake the dissertation research described in this proposal soon after a DDRI award is made.

   I affirm that I have read this proposal, and I believe that this proposal is appropriate for NSF submission.

Signed: _____
[Insert PI's signature]

University: _____
[Insert university name]

Date: _____
[Insert date that the statement is signed by the PI]

Permit Related Documents

Dissertation research in archaeology often requires permits to conduct field research or to access materials. Related documentation may be included as supplementary documents.

Please note: Letters of recommendation, transcripts, and other such material may not be included as supplementary documents.

5. **Data-Management Plan**

   All proposals must include as a supplementary document a plan for data management and sharing the products of research. The data-management plan to be submitted with a proposal must be no longer than two (2) pages in length.

   This supplementary document should describe how the proposal will conform to NSF policy on the dissemination and sharing of research results. For more information about this requirement, please see the PAPPG, Chapter II.C.2.j and the Data Management and Sharing Frequently Asked Questions(FAQs). **Please note:** the SBE Directorate has additional guidance for proposals submitted to SBE programs, please see Data Management for NSF SBE Directorate Proposals and Awards. Questions should be addressed to John Yellen via e-mail (jyellen@nsf.gov).
   While the Archaeology Program does not sponsor or have an official arrangement with any data archive it would note that two organizations provide this service.

   - Open Context http://opencontext.org and http://opencontext.org/about/publishing. One may contact Open Context's Editor publish@opencontext.org for further information.
   - The Digital Archaeological Record (tDAR; http://www.tdar.org). One may contact Francis P. McManamon, Executive Director of Digital Authority (480) 965-6510; fpmcmanamon@digitalantiquity.org who maintains and develops tDAR.

   In addition to the NSF guidance, you may find the guidance provided by the Society for American Archaeology (SAA) helpful. Additional resources can be found at the SAA site.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

- Project budgets should be developed at scales appropriate for the work to be conducted.
- The maximum allowable budget is $20,000 in allowable direct costs. Indirect costs are in addition to this maximum direct cost limitation and are subject to the awardee's current Federally negotiated indirect cost rate.
- The direct costs requested in a DDRI proposal must be allowable costs that will improve the conduct of dissertation research. Student stipends, tuition expenses, assistantships, and the doctoral advisor's travel expenses are NOT eligible for support.
- Since salaries or stipends for the doctoral student or their advisor(s) are not eligible for support, after the PI and Co-PI(s) are entered on the Cover Page, their names must be manually removed from the Senior Personnel listing on the budget pages. This is to avoid construal as voluntary committed cost sharing, which is not permitted.

Budget Preparation Instructions:

DDRI awards provide funding for research costs not normally covered by the student's university. Examples of the kinds of expenses that may be included in a DDRI proposal budget are the following (please note that this list is illustrative and not inclusive):

- Costs associated with travel and related expenses to conduct research at field sites, archives, specialized collections, and/or facilities away from the student's campus.
- Costs for equipment necessary for the conduct of the project that will be devoted to the project over the duration of the award. (Note that any equipment purchased with NSF funds becomes property of the awardee organization.)
- Costs for materials and supplies required for the conduct of the project.
- Costs associated with archaeological field survey and excavation.
- Costs for dating and analysis of archaeologically relevant materials.
- Costs for archiving, preservation and public access to primary data.

Costs that cannot be reimbursed by DDRI awards include the following:

- A stipend or salary for the doctoral student or advisor. (Note that salaries or payments for work by other individuals whose assistance is essential to the conduct of the project may be permitted when there is sound justification for such expenses.)
- Costs for tuition, textbooks, or other items not directly related to the conduct of dissertation research.
- Publication costs for articles based on the dissertation, except when the university's degree requirements permit the substitution of published research results for a free-standing dissertation.
- Costs for travel of the dissertation advisor(s) to the field site and/or professional meetings.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. submitter's local time):

  Proposals Accepted Anytime

D. FastLane/Grants.gov Requirements

For Proposals Submitted Via FastLane:

To prepare and submit a proposal via FastLane, see detailed technical instructions available at: https://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

For Proposals Submitted Via Grants.gov:

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: http://www.grants.gov/web/grants/applicants.html. In addition, the NSF Grants.gov Application Guide (see link in Section V.A) provides instructions regarding the technical preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

Submitting the Proposal: Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

Proposers that submitted via FastLane are strongly encouraged to use FastLane to verify the status of their submission to NSF. For proposers that submitted via Grants.gov, until an application has been received and validated by NSF, the Authorized Organizational Representative may check the status of an application on Grants.gov. After proposers have received an e-mail notification from NSF, Research.gov should be used to check the status of an application.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program for acknowledgement and, if they meet NSF requirements, for review. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF either as *ad hoc* reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in PAPPG Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: https://www.nsf.gov/bfa/dias/policy/merit_review/.

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *Building the Future: Investing in Discovery and Innovation - NSF Strategic Plan for Fiscal Years (FY) 2018 – 2022*. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the strategic objectives in support of NSF's mission is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions must recruit, train, and prepare a diverse STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

A. Merit Review Principles and Criteria

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a 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 "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

1. Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. **Both** criteria are to be given **full consideration** during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (PAPPG Chapter II.C.2.d(i). contains additional information for use by proposers in development of the Project Description section of the proposal). Reviewers are strongly encouraged to review the criteria, including PAPPG Chapter II.C.2.d(i), prior to the review of a proposal.

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals against two criteria:

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

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

1. What is the potential for the proposed activity to
    a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
    b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

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

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

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review.

Reviewers will be asked to evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will generally be completed and submitted by each reviewer and/or panel. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF strives to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new awardees may require additional review and processing time. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director acts upon the Program Officer's recommendation.

After programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications. After an administrative review has occurred, Grants and Agreements Officers perform the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

Once an award or declination decision has been made, Principal Investigators are provided feedback about their proposals. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers or any reviewer-identifying information, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process).

B. Award Conditions

An NSF award consists of: (1) the award notice, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award notice; (4) the applicable award conditions, such as Grant General Conditions (GC-1)*; or Research Terms and Conditions* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award notice. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at https://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report, will delay NSF review and processing of any future funding increments as well as any pending proposals for all identified PIs and co-PIs on a given award. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through Research.gov, for preparation and submission of

annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

More comprehensive information on NSF Reporting Requirements and other important information on the administration of NSF awards is contained in the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- John E. Yellen - Program Director, telephone: (703) 292-8759, email: jyellen@nsf.gov
- Don Rimon - Program Analyst, telephone: (703) 292-2960, email: drimon@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov.

IX. OTHER INFORMATION

The NSF website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this website by potential proposers is strongly encouraged. In addition, "NSF Update" is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Grants Conferences. Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. "NSF Update" also is available on NSF's website.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this mechanism. Further information on Grants.gov may be obtained at http://www.grants.gov.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 55,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See the *NSF Proposal & Award Policies & Procedures Guide* Chapter II.E.6 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at https://www.nsf.gov

- **Location:** 2415 Eisenhower Avenue, Alexandria, VA 22314
- **For General Information** (NSF Information Center)**:** (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**

  Send an e-mail to: nsfpubs@nsf.gov

  or telephone: (703) 292-8134
- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton
Reports Clearance Officer
Policy Office, Division of Institution and Award Support
Office of Budget, Finance, and Award Management
National Science Foundation
Alexandria, VA 22314