

Science, Technology, and Society (STS)

PROGRAM SOLICITATION

NSF 12-509

REPLACES DOCUMENT(S):

NSF 08-553



National Science Foundation

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

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

February 01, 2012

February 1, Annually Thereafter

August 01, 2012

August 1, Annually Thereafter

IMPORTANT INFORMATION AND REVISION NOTES

Revision Summary

(1) This solicitation revises the characterization of the program as consisting of four core areas of inquiry with a more general framework that emphasizes social scientific, historical, and philosophical methodological approaches to the interface between science and society.

(2) Two modes of funding, professional development fellowships and small grants for training and research, have been eliminated. Postdoctoral fellowships are now a type of scholars award.

(3) The cap on postdoctoral fellowships has been increased to \$150,000 (including indirect costs) and the cap on doctoral dissertation improvement grants has been increased to \$18,000 (including indirect costs). The cap on Scholars Awards has been changed to \$240,000 (including indirect costs), and the cap on Standard/Collaborative Grants has been changed to \$500,000 (including indirect costs).

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Science, Technology, and Society (STS)

Synopsis of Program:

STS considers proposals for scientific research into the interface between science (including engineering) or technology, and society. STS researchers use diverse methods including social science, historical, and philosophical methods. Successful proposals will be transferrable (i.e., generate results that provide insights for other scientific contexts that are suitably similar). They will produce outcomes that address pertinent problems and issues at the interface of science, technology and society, such as those having to do with practices and assumptions, ethics, values, governance, and policy.

The STS review process is approximately six months. It includes appraisal of proposals by ad hoc reviewers selected for their expertise and by an advisory panel that meets twice a year. The deadlines for the submission of proposals are February 1st for proposals to be funded as early as July, and August 1st for proposals to be funded in or after January.

The Program encourages potential investigators with questions as to whether their proposal fits the goals of the program to contact one of the program officers.

Cognizant Program Officer(s) and Additional Points of Contact:

- Frederick Kronz—Program Director, Program Officer, telephone: (703) 292-7283, email: fkronz@nsf.gov
- Linda Layne—Program Director, telephone: (703) 292-5026, email: llayne@nsf.gov
- Steven Deitz—Science Assistant, telephone: (703) 292-4927, email: sdeitz@nsf.gov

- Tracy N. Wigglesworth-Program Asst, telephone: (703) 292-4882, email: twiggles@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 or Continuing Grant or Fellowship

Estimated Number of Awards: 40

Anticipated Funding Amount: \$6,200,000 in FY 2012.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Organization limit varies by the mode of support:
 - Standard Research Grants and Grants for Collaborative Research: US Academic Institutions and Non-Profit Non-Academic Organizations.
 - Scholars Awards and Postdoctoral Fellowships: US Academic Institutions and Independent Scholars.
 - Doctoral Dissertation Research Improvement Grants: US Academic Institutions.
 - Conference and Workshop Support: No limitations (see the GPG for categories of proposers eligible to submit proposals to NSF).

See Section II. Program Description for detailed information about each mode of support.

Who May Serve as PI:

PI eligibility limit varies by the mode of support. See Section II. Program Description for detailed information about each mode of support.

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 restrictions or limits.

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, Part I: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg.
 - 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: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantgovguide)

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. proposer's local time):

February 01, 2012

February 1, Annually Thereafter

August 01, 2012

August 1, Annually Thereafter

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.

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I. INTRODUCTION

The **Science, Technology, and Society Program (STS)** supports scientific research that examines relationships between science (including engineering), technology, and society. STS researchers use diverse methods including social science, historical, and philosophical methods. Effective STS proposals go beyond simply describing the interaction between science, technology and society. They explain how the proposed research provides new and important scientific insights into the theory or practice of science (or engineering) or into the adoption, use, or diffusion of technology. They also explain how the proposed research would bring to light the underlying assumptions, practices, methods, values, or goals of science, engineering, or technology. Successful proposals are transferrable (i.e. generate results that provide insights for other scientific contexts that are suitably similar).

The program supports proposals on a broad range of topics related to science and society, and it especially welcomes proposals that focus on:

1. How ethical issues and values interconnect with science and technology, and how norms and values institutionalized in science and technology engage with society.
2. How policy choices affect scientific and technological knowledge production and innovation, and on how scientific and technical knowledge and innovation affect policy decisions.

II. PROGRAM DESCRIPTION

The **Science, Technology, and Society Program (STS)** supports scientific research that examines relationships between science (including engineering), technology, and society. Effective STS proposals go beyond simply describing the interaction between science, technology and society. They explain how the proposed research provides new and important scientific insights into the theory or practice of science (or engineering) or into the adoption, use, or diffusion of technology. They also explain how the proposed research would bring to light the underlying assumptions, practices, methods, values, or goals of science, engineering, or technology.

The program supports proposals on a broad range of topics related to science and society, and it especially welcomes proposals that focus on:

1. How ethical issues and values interconnect with science and technology, and how norms and values institutionalized in

science and technology engage with society.

2. How policy choices affect scientific and technological knowledge production and innovation, and on how scientific and technical knowledge and innovation affect policy decisions.

Successful proposals are transferrable (i.e. generate results that provide insights for other scientific contexts that are suitably similar). Effective proposals generate findings that impact pertinent problems on the interface between society and science (or engineering or technology). They explain how the results of the project will serve to produce outcomes that carry out the broader mission of NSF. Such outcomes include contributing substantially to science education and public understanding of science, to broadening participation in science, and to addressing societal issues at the interface of science, ethics, and policy. Outstanding proposals do not merely gesture at such outcomes; rather, they articulate a plan by showing that there are available resources for bringing about the outcome in a sustainable manner.

Finally, effective proposals articulate a detailed research plan. For example, proposals for projects that involve data collection or use should provide a clear characterization of how the data are to be analyzed. Those involving surveys (or interviews) should sufficiently portray the survey tool that is to be used. Those proposing to develop a new theory (or method) to supplant an existing theory should clearly articulate problems with the existing theory and provide a sufficient sense for the essential elements of the new theory including how it would avoid those problems.

STS considers proposals that use multiple methods including social scientific, historical, and philosophical methods. It has supported research that uses interpretive, visual, and statistical methods; and analytical, critical, theoretical, empirical, ethnographic, and comparative studies. Proposals that use multiple methods and draw on multiple disciplinary traditions within STS are especially welcome.

STS is also responsible for representing the Directorate for the Social, Behavioral and Economic Sciences (SBE) in priority areas and other cross-directorate initiatives, such as NSF's National Nanotechnology Initiative (NNI) and the Ethics Education in Science and Engineering (EESE) program. In these cross-directorate activities, SBE involvement is likely to focus on the historical development, ethical, and social influence or philosophical foundations of the science or technology of the initiative. STS promotes the study of the sciences supported by the various NSF Directorates with respect to their historical, ethical, social, philosophical, and policy dimensions. Cross-directorate collaborations are also strongly encouraged.

MODES OF SUPPORT

STS provides a range of funding opportunities designed to support the full spectrum of research, educational, and scholarly activities undertaken by scholars working on science, technology and society. Modes of support include Standard Research Grants and Grants for Collaborative Research, Scholars Awards, Conference/Workshop Support and Doctoral Dissertation Research Improvement Grants. The title of the FastLane application must identify the mode of support being requested. These modes of support are characterized in detail below.

1. STANDARD RESEARCH GRANTS AND GRANTS FOR COLLABORATIVE RESEARCH

These grants support proposals for basic research or infrastructure development. Proposals should be prepared in accordance with the guidelines for regular research proposals. (See the NSF Grant Proposal Guide and the instructions and additional items listed below.)

Projects typically include no more than two months of support for principal investigators. Research projects often include support for research assistance, data collection activities and other research expenses, or training of Ph.D. students and postdocs from multiple disciplines around a newly-emerging topic. Infrastructure projects develop electronically-accessible resources that facilitate high priority STS research. Program support of infrastructure projects is directed towards scholarly research and data production, rather than administrative or logistical activities.

Budget Guidelines for Standard and Collaborative Grants

Generally the maximum award provides no more than \$500,000 (including indirect costs). The award duration is typically two to three years. Proposals requesting a longer duration or a larger amount of support will be considered, if extraordinarily well justified and merited.

Eligibility Requirements for Standard and Collaborative Grants

Research and infrastructure awards are made to US academic institutions or to non-profit research organizations.

2. SCHOLARS AWARDS AND POSTDOCTORAL FELLOWSHIPS

Eligibility Requirements for Scholars Awards and Postdoctoral Fellowships

Scholars Awards and Postdoctoral Fellowships are normally made to US academic institutions, although an individual who is not affiliated with an appropriate US academic institution may submit a proposal as an independent scholar. In that case, the scholar must be a US citizen or national, or have permanent resident status.

Scholars Awards provide up to full-time release for an academic year and a summer to conduct basic research. This time can be distributed over two or more years. In exceptional circumstances, longer releases can be requested.

Budget Guidelines for Scholars Awards

- Awards may provide support for up to a full-time academic year (nine months) research, including salary, fringe benefits, and other direct costs, up to a ceiling that is ordinarily \$90,000 for total direct costs.
- Proposals may also request support up to full-time summer support, including salary, fringe benefits, and other direct costs, up to approximately \$20,000 for total direct costs.
- Research assistance may also be requested but must be justified in the proposal's work plan. Normal limits for such support are \$8,000 per year for an undergraduate research assistant, \$18,000 per year for a graduate student and \$50,000 per year (including fringe benefits) for a designated postdoctoral researcher.
- The maximum award (indirect costs included) is \$240,000. Proposals of longer duration or requesting larger amounts of support will be considered if extraordinarily well justified and merited.

Postdoctoral fellowships support researchers within five years of receipt of the Ph.D. in order to enhance their methodological skills and research competence. Proposals for postdoctoral fellowships must include a mentoring plan, consistent with the PAPP Guide, Part I: Grant Proposal Guide Chapter II. The site of the fellowship must be different than the institution where the scholar received their Ph.D. degree. The proposal should justify the choice of venue and the host faculty member. Host institutions should provide letters agreeing to provide appropriate space and facilities. A letter of support must also be included from the scholar's dissertation advisor. These letters should be submitted in the Supplementary Documentation section of the proposal.

Budget Guidelines for Postdoctoral Fellowships

- Postdoctoral Fellowships normally provide an annual stipend of \$75,000 per year (including indirect costs) for a maximum of two years.

Postdoctoral fellowships may be made to an institution or an individual, and as such, are subject to different award terms and conditions. Fellows who encounter any life changing situation (e.g. birth or adoption of a child, death of family member) during the period of the award will be encouraged to discuss family friendly resolutions with the cognizant program officer.

3. CONFERENCE AND WORKSHOP SUPPORT

These proposals should be prepared in accordance with the NSF Grant Proposal Guide and the additional information below.

STS can help to support national and international conferences, symposia, and research workshops that promote new research networks between researchers in STS and scientists and engineers, or between STS scholars and members of scholarly communities not normally in contact with each other. The ultimate goal of the gathering should be development of a new field of scholarship, pedagogy, or research.

Proposals for conference or workshop support should describe the need for the gathering, the proposed date and location, topics and persons who will be involved, prior related meetings, publicity, and expected outcomes. Conferences and workshops may, where justified, be carried out as special sessions in regular meetings of professional societies. Meetings usually should be open. Every effort should be made to include younger scholars and members of underrepresented groups, and these efforts should be described in the proposal.

Budget Guidelines for Conferences and Workshops

- STS normally limits support for conferences and workshops to \$25,000 (including indirect costs).
- Expenses (travel, stipends, honoraria, etc.) for attendees should be entered on the Participant Support line of the budget.

4. DOCTORAL DISSERTATION RESEARCH IMPROVEMENT GRANTS

These awards provide funds for dissertation research expenses not normally available through the student's university. The dissertation advisor is the principal investigator on these proposals; the doctoral student should be listed as co-principal investigator.

Dissertation proposals should be prepared in accordance with the guidelines for regular research proposals. (See the NSF Grant Proposal Guide and the instructions and additional items listed below.) The Results from Prior NSF Support section is not required with these proposals.

Awards are not intended to cover the full costs of a student's doctoral dissertation research. Funds may be used only for valid research expenses which include, but are not limited to, conducting field research in settings away from campus that would not otherwise be possible, data collection and sample survey costs, payments to subjects or informants, specialized research equipment, analysis and services not otherwise available, supplies, travel to archives, special collections or seminars, and facilities or field research locations, and partial living expenses for conducting necessary research away from the student's university. Funds are to be used exclusively for the actual conduct of dissertation research. These funds may not be used as a student stipend, for tuition, textbooks, journals, or for the typing, reproduction, or publication costs of the student's dissertation. Funds may be requested for research assistants only in very special circumstances, which should be carefully justified.

The proposal must include a letter from the faculty advisor. This document is not intended as a traditional recommendation, but should evaluate the student's promise as a researcher, the student's capabilities for undertaking this project, and the value and status of the proposed research. It should also discuss the student's current progress in the graduate program, affirming that the student has passed the qualifying exams, completed all course work required for the degree, and that the dissertation topic has been approved. If the doctoral student will use the award for travel expenses to work with a specialist, the proposal should provide a justification for this choice and a letter of commitment from the specialist agreeing to work with the student. This letter should not evaluate the quality of the work or of the student. These requirements must be met before an award will be made. Letters should be submitted in the Supplementary Documentation section of the FastLane proposal.

Budget Guidelines for Doctoral Dissertation Research Improvement Grants

- The maximum limit on a dissertation award is \$15,000 (including indirect costs) for research in North America.
- The maximum limit for international research is \$18,000 (including indirect costs).
- 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 should 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.

Eligibility Requirements for Doctoral Dissertation Research Improvement Grants

- Doctoral students who are enrolled in graduate programs at US graduate research institutions are eligible to apply.
- The dissertation advisor is the principal investigator and the doctoral student is the Co-PI.
- Doctoral students must have passed the qualifying exams, completed all course work required for the degree, and had the dissertation topic approved prior to receiving the award.

5. OTHER GRANT OPPORTUNITIES

The STS program may provide supplemental funding to existing awards in order to create research experiences for undergraduates (REU) having to do with ethics and values in science. See the [REU Solicitation](#) in the listings of NSF funding opportunities. The STS Program participates in most Foundation-wide initiatives, such as CAREER, ADVANCE, MRI, and such specially-focused research efforts as Ethics Education in Science and Engineering (EESE) and Nanoscale Science and Engineering (NSE). Information about these opportunities can be found at the [NSF Home Page](#), by linking to the funding opportunities alphabetical listing or to the cross-cutting programs section of the page. You can also use the search feature to find relevant documents. Finally, you may also want to visit the [SBE Office of Multidisciplinary Activities web site](#).

III. AWARD INFORMATION

- Anticipated Type of Award: Standard, Continuing Grant, or Fellowship

- Estimated Number of Awards: 40
• Anticipated Funding Amount: \$6,200,000 in FY 2012

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Organization limit varies by the mode of support:
 - Standard Research Grants and Grants for Collaborative Research: US Academic Institutions and Non-Profit Non-Academic Organizations.
 - Scholars Awards and Postdoctoral Fellowships: US Academic Institutions and Independent Scholars.
 - Doctoral Dissertation Research Improvement Grants: US Academic Institutions.
 - Conference and Workshop Support: No limitations (see the GPG for categories of proposers eligible to submit proposals to NSF).

See Section II. Program Description for detailed information about each mode of support.

Who May Serve as PI:

PI eligibility limit varies by the mode of support. See Section II. Program Description for detailed information about each mode of support.

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 restrictions or limits.

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 Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG 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: (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantgovguide). 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. Chapter II, Section D.4 of the Grant Proposal Guide provides additional information on collaborative proposals.

Important Proposal Preparation Information: FastLane will check for required sections of the full proposal, in accordance with *Grant Proposal Guide* (GPG) instructions described in Chapter II.C.2. The GPG requires submission of: Project Summary; Project Description; References Cited; Biographical Sketch(es); Budget; Budget Justification; Current and Pending Support; Facilities, Equipment & Other Resources; Data Management Plan; and Postdoctoral Mentoring Plan, if applicable. If a required section is missing, **FastLane will not accept the proposal**.

Please note that the proposal preparation instructions provided in this program solicitation may deviate from the GPG instructions. If the solicitation instructions do not require a GPG-required section to be included in the proposal, insert text or upload a document in that section of the proposal that states, "Not Applicable for this Program Solicitation." Doing so will enable FastLane to accept your proposal.

Please note that per guidance in the GPG, the Project Description must contain, as a separate section within the narrative, a discussion of the broader impacts of the proposed activities. Unless otherwise specified in this solicitation, you can decide where to include this

section within the Project Description.

Additional Proposal Preparation Instructions

The title of the proposal must identify the mode of support (Standard Research Grant, Scholars Award, Dissertation Grant, etc.).

Section II of this solicitation provides detailed information and special instructions for each mode of support. The instructions for some of these modes of support deviate from the guidelines in the NSF Grant Proposal Guide and the NSF Grants.gov Application Guide. Please refer to Section II, Program Description for detailed information about each mode of support.

B. Budgetary Information

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited

Other Budgetary Limitations:

See **Section II. Program Description** for detailed information.

C. Due Dates

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

February 01, 2012

February 1, Annually Thereafter

August 01, 2012

August 1, Annually Thereafter

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 the GPG as [Exhibit III-1](#).

A comprehensive description of the Foundation's merit review process is available on the NSF website at:
http://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 [Investing in](#)

Science, Engineering, and Education for the Nation's Future: NSF Strategic Plan for 2014-2018. 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. ([GPG 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 [GPG 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 and/or Panel 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 be completed and submitted by each reviewer. 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 http://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 Award & Administration Guide (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

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 at least 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). Within 90 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 Award & Administration Guide (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

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:

- Frederick Kronz—Program Director, Program Officer, telephone: (703) 292-7283, email: fkronz@nsf.gov
- Linda Layne—Program Director, telephone: (703) 292-5026, email: llyane@nsf.gov
- Steven Deitz—Science Assistant, telephone: (703) 292-4927, email: sdeitz@nsf.gov
- Tracy N. Wigglesworth—Program Asst, telephone: (703) 292-4882, email: twiggles@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 at https://public.govdelivery.com/accounts/USNSF/subscriber/new?topic_id=USNSF_179.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this new 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 provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 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 <http://www.nsf.gov>

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
- **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) 292-7827
- **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 proposed 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 3145-0023. Public reporting burden for this collection of information is estimated to average 12 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
Office of the General Counsel
National Science Foundation
Arlington, VA 22230

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11/07/06
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