Science of Learning: Collaborative Networks (SL-CN)

National Science Foundation

Directorate for Social, Behavioral & Economic Sciences

Directorate for Education & Human Resources

Directorate for Computer & Information Science & Engineering

Directorate for Engineering

Directorate for Biological Sciences

Office of International Science and Engineering

Letter of Intent Due Date(s) *(required)* (due by 5 p.m. proposer's local time):

March 01, 2016

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

April 04, 2016

IMPORTANT INFORMATION AND REVISION NOTES

This Science of Learning: Collaborative Networks (SL-CN) solicitation seeks to support integrative, interdisciplinary research projects that investigate learning in humans, other animals, and machines. The SL Program follows on the Science of Learning Centers (SLC) Program that held its final competition in 2005; no future SLC competitions are planned. This solicitation is active for one year, but future SL solicitations are anticipated. This solicitation represents only minor changes from the SL-CN FY 2015 solicitation (NSF 15-532). This new solicitation clarifies program goals and offers revised examples of research topics. There are two substantive changes in this FY 2016 solicitation.

- For proposals submitted to this solicitation, proposers must include their Results from Prior NSF Support information as a supplementary document instead of in the proposal's Project Description.
- If an individual appears as a principal investigator (PI), Co-PI, Senior Personnel (or any similar designation), or elsewhere in the proposal budget in more than one proposal submitted in response to this solicitation, **all proposals** submitted with that person will be returned without review. (**No exceptions made**).

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 16-1), which is effective for proposals submitted, or due, on or after January 25, 2016. Please be advised that proposers who opt to submit prior to January 25, 2016, must also follow the guidelines contained in NSF 16-1.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Science of Learning: Collaborative Networks (SL-CN)

Synopsis of Program:

The goals of the Science of Learning (SL) Program are to: advance fundamental knowledge about learning through integrative research; connect the research to specific scientific, technological, educational, and workforce challenges; and enable research communities to capitalize on new opportunities and discoveries. The program supports projects that emphasize consilience of knowledge, adopting diverse disciplinary approaches to shared research questions. The program seeks to develop robust and integrated accounts of contexts, mechanisms, and effective strategies of learning.

This solicitation invites proposals for the creation of new research networks to address important integrative questions in the science of learning. Each network must identify an integrative research goal involving convergence of evidence from the diverse disciplinary approaches represented by participants in the network. The proposed research must substantially advance understanding of learning in more than a single discipline. Networks may focus on advancing basic research through experiments and theory, as well as translating findings from basic

research on learning to applications in order to benefit society and further inform fundamental theories of learning. This solicitation is for proposals that do not fit into existing NSF programs, by virtue of the emphasis on interdisciplinarity in service of knowledge consilience and integration.

Each network is expected to engage in both of the following activities:

- Partnership-building activities among the network participants to optimize scientific exchange for the co-design and execution of network goals; and
- Collaborative, integrative research to be conducted by the network participants. Integrative research must address questions of genuine significance across multiple disciplines, or multiples levels of analysis.

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.

- Soo-Siang Lim, SBE/BCS, telephone: (703) 292-7878, email: slim@nsf.gov

- Charles Kalish, SBE/BCS, telephone: (703) 292-7369, email: ckalish@nsf.gov

- Gregg Solomon, EHR/DRL, telephone: (703) 292-8333, email: gesolomo@nsf.gov

- Tatiana Korelsky, CISE/IIS, CISE/CNS, telephone: (703) 292-8930, email: tkorelsk@nsf.gov

- Elliot Douglas, ENG/EEC, telephone: (703) 292-7051, email: edouglas@nsf.gov

- Bruce P. Palka, MPS/DMS, telephone: (703) 292-4856, email: bpalka@nsf.gov

- Anne L. Emig, OD/OISE, telephone: (703) 292-7241, email: aemig@nsf.gov

- Michelle Elekonich, BIO/IOS, telephone: (703) 292-7202, email: melekoni@nsf.gov

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

- 47.041 --- Engineering
- 47.070 --- Computer and Information Science and Engineering
- 47.074 --- Biological Sciences
- 47.075 --- Social Behavioral and Economic Sciences
- 47.076 --- Education and Human Resources
- 47.079 --- Office of International Science and Engineering

Award Information

Anticipated Type of Award: Standard Grant

Estimated Number of Awards: 13

Contingent on the availability of funds and receipt of competitive proposals, NSF expects to make 13 awards under this solicitation.

Anticipated Funding Amount: $9,750,000

Up to $9.75 million is expected to be available in Fiscal Year (FY) 2016. Contingent on the availability of funds and receipt of competitive proposals, NSF expects to make 13 awards under this solicitation. Awards are expected to be up to three years in duration with a maximum award size of $750,000 total costs over the full duration of the project.

Eligibility Information

Who May Submit Proposals:

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the Grant Proposal Guide, Chapter I, Section E.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or Co-PI: 1

An individual may appear as Principal Investigator (PI), Co-PI, Senior Personnel (or any similar designation), or elsewhere in the proposal budget in no more than one proposal submitted in response to this solicitation. Proposers are responsible for adhering to this limit. In cases where an investigator appears in these roles in two or more proposals, all proposals submitted with that person will be returned without review. **No exceptions will be made.**

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Submission of Letters of Intent is required. Please see the full text of this solicitation for further information.

- **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=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

- **Letter of Intent Due Date(s)** *(required)* (due by 5 p.m. proposer's local time):

  March 01, 2016

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

  April 04, 2016

Proposal Review Information Criteria

Merit Review Criteria:

National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

Award Conditions:

Standard NSF award conditions apply.

Reporting Requirements:

Standard NSF reporting requirements apply.

TABLE OF CONTENTS

I. INTRODUCTION

Learning is central to advancing performance and capability in humans, other animals, and machines. It is critical throughout the lifespan, enabling development and adaptation to changing environments. Advances in fundamental knowledge about learning are urgently needed for development of innovative technology, gains in productivity and economic growth, improvement of educational practices, and preparation of a next generation workforce able to meet challenges yet unknown.

Learning is complex, and many investigators from multiple disciplinary perspectives conduct research on this topic. Advances in the integration and accumulation of this knowledge notwithstanding, key knowledge remains fragmented across and within disciplines. Progress is hampered by the jingle of studying different phenomena under the same name, and the jangle of studying the same phenomena under different names. A deep and comprehensive understanding of learning requires integration across multiple perspectives and levels of analysis. NSF is uniquely positioned to lead efforts towards consilience of knowledge in this area, as the SL Program builds on and further tests the concordance of evidence relevant to learning gained by NSF investments in all of the scientific disciplines, education and engineering. The full ambition of this Program links the science, engineering and education efforts to achieve NSF's strategic goals to: 1) transform the frontiers of science and engineering, and 2) stimulate innovation and address societal needs through research and education.

This solicitation is jointly issued and managed by six NSF organizations: Social, Behavioral & Economic Sciences (SBE); Education & Human Resources (EHR); Computer & Information Science & Engineering (CISE); Engineering (ENG); Biological Sciences (BIO); and Office of International Science and Engineering (OISE). Its goals are to foster the creation of new networks of investigators who will integrate scientific ideas across disciplines and professions to conduct innovative research that has the potential to provide new linkages, and syntheses of knowledge for transformative advances in our understanding of learning.

This solicitation is designed to support projects that – due to the activities supported and their interdisciplinarity and integrative breadth – do not fit into existing NSF programs. The SL program construes learning broadly, including that of humans, other animals and machines.

II. PROGRAM DESCRIPTION

Science of Learning: Collaborative Networks (SL-CN) invites proposals for the creation of new networks of investigators, each of which will engage researchers from different disciplines to focus on (an) important and integrative question(s) in the SL. Networks will focus on advancing basic research through integrative, interdisciplinary perspectives and methodologies, through integration of theory and experiment, and by translating findings from basic research on learning to applications to benefit society and further inform fundamental theories of learning.

Each network is expected to engage in both of the following activities:

- Partnership-building activities among the network participants to optimize scientific exchange for the co-design and execution of network goals.
- Collaborative, integrative research to be conducted by the network participants. The integrative research might be a single project or multiple projects. To be integrative, the proposed research must address questions of genuine significance across multiple disciplines.

Collaborative networks may include participants from outside the U.S. who, by virtue of their particular skills or provision of access to unique populations, sites or other resources, clearly strengthen the proposed project activities. As NSF funding predominantly supports participation by U.S. investigators, network participants from institutions outside the U.S. are encouraged to seek support from their respective funding organizations. Additional information about opportunities for international collaborations can be found in the NSF International Science and Engineering Funding Opportunities Website.

The examples below illustrate the idea of integrative interdisciplinary research on learning. Such research involves identifying foundational questions about learning that span disciplines, for which convergence and integration of evidence from diverse disciplinary approaches will lead to new insights/approaches. This list is not meant to be exhaustive; the solicitation is open to networks focusing on all topics and approaches that address significant questions in the SL. Examples of integrative, interdisciplinary research approaches:

- Combining experimental, computational, and mathematical modeling approaches to study learning. For example, developing models of significant learning problems and conducting translational research in educational settings to refine the models and advance basic research on mechanisms of learning.
- Drawing on research from multiple disciplines to identify important commonalities across seemingly different learning problems or to identify important differences across seemingly similar learning problems. For example, comparing machine learning algorithms with cognitive theories of human classification and using this comparison to advance work in both disciplines.
- Using knowledge derived from basic research on how people learn to inform the design of learning technologies and sensors while simultaneously collecting data on the effectiveness/use of technologies to further theory development. For example, developing innovative assistive technologies, while collecting data to both refine the technologies and to further understand learning disabilities.

Examples that would **not** be considered integrative, interdisciplinary:

- Using theories, measures, and instruments from one discipline to address research questions in another without reciprocation. For example collecting neural data to predict who will benefit from an instructional intervention would not be integrative unless the results also fed back such that understanding of the underlying neural or cognitive constructs was informed by research in the educational context.
- Projects that argue for interdisciplinary significance without directly engaging with other disciplines. For example, drawing out implications for mathematics instruction based on cognitive theories would not be integrative unless the hypotheses are directly tested in an educational setting. A project developing new computational models of learning inspired by

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neuroscience must also advance research in neuroscience, or in some other discipline (e.g., lead to development of improved sensors or engineered learning systems).

- Conducting parallel studies of related phenomena using approaches from different disciplines. For example, developing cognitive and computational models of the same data would not be integrative unless the models are compared and reconciled.

The scientific directions described above have been informed by the Advisory Committee to the NSF Directorate of Social, Behavioral, & Economic Sciences, and benefited from input by scientific experts and other relevant stakeholders who participated in the following events: the NSF-OECD Conference - Innovation in Education: Connecting How we Learn to Educational Practice and Policy, Research Evidence and Implications (2012); Glial Biology of Learning (2013), and the Physical and Mathematical Principles of Brain Structure and Function Workshop (2013).

In addition, the goals of the new SL Program are informed by several recent National Research Council/National Academy of Engineering reports targeting K-16 educational research: STEM Integration in K-12 Education (2014); Developing Assessments for the Next Generation Science Standards (2014); Education for Life and Work (2012); and Disciplined-Based Education Research (2012). Also informative was Common Guidelines for Education Research and Development. The Guidelines, developed jointly by the NSF and the Institute of Education Sciences in the U.S. Department of Education, describe types of research studies and suggest forms of evidence appropriate for claims for each type.

This solicitation complements related, ongoing programs at the NSF, but is expressly designed to support projects that – due to their interdisciplinarity, integrative breadth and range of activities (i.e., partnership-building and collaborative, exploratory research) – do not fit into existing NSF programs. Applicants are encouraged to discuss with the cognizant Program Directors the suitability of these related programs for the applicant's proposed project:

Cyberlearning and Future Learning Technologies (Cyberlearning)

Discovery Research K-12 (DRK-12)

EHR Core Research (ECR)

STEM-C Partnerships: MSP (STEM-CP: MSP)

Improving Undergraduate STEM Education (IUSE)

Promoting Research and Innovation in Methodologies for Evaluation (PRIME)

Cognitive Neuroscience

Developmental and Learning Sciences (DLS)

Perception, Action & Cognition (PAC)

Research in the Formation of Engineers (RFE)

Robust Intelligence (RI)

Energy, Power, Control and Networks (EPCN)

Engineering and Systems Design (ESD)

Systems Science (SYS)

The SL goals are congruent with the BRAIN (Brain Research through Advancing Innovative Neurotechnologies) Initiative, a major investment by the NSF, Defense Advanced Research Projects Agency, Intelligence Advanced Research Projects Activity, Food and Drug Administration, National Institutes of Health and several non-government partners. As described in its fact sheet (September 30, 2014), "The BRAIN Initiative "will accelerate the development and application of new technologies that will enable researchers to produce dynamic pictures of the brain that show how individual brain cells and complex neural circuits interact at the speed of thought. These technologies will open new doors to explore how the brain records, processes, uses, stores, and retrieves vast quantities of information, and shed light on the complex links between brain function and behavior." In addition, this solicitation aligns with the National Robotics Initiative, an effort by the NSF, National Institutes of Health, U.S. Department of Agriculture, National Aeronautics and Space Administration, and Department of Defense, including the Defense Advanced Research Projects Agency (DARPA), to support the development of robots that work with or beside people to extend or augment human capabilities.

The SL goals are congruent with NSF's continuing interest in increasing diversity and in broadening participation. Networks addressing topics in the Science of Learning relating to issues that affect broadening participation are welcome under this solicitation. Examples of topics relevant to broadening participation include: what and how social-cultural influence (e.g. gender and racial stereotypes) affect learning in ways that result in under-participation in STEM across demographic groups, and ways in which these effects could be mitigated; and how do stresses from low socio-economic circumstances affect learning, resulting in poor readiness to learn, under-preparation and lack of opportunity to learn meaningful, relevant STEM content.

III. AWARD INFORMATION

Up to $9.75 million is expected to be available in Fiscal Year (FY) 2016. Contingent on the availability of funds and receipt of competitive proposals, NSF expects to make 13 awards under this solicitation. Awards are expected to be up to three years in duration with a maximum award size of $750,000 total costs over the full duration of the project.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the Grant Proposal Guide, Chapter I, Section E.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

Limit on Number of Proposals per PI or Co-PI: 1

An individual may appear as Principal Investigator (PI), Co-PI, Senior Personnel (or any similar designation), or elsewhere in the proposal budget in no more than one proposal submitted in response to this solicitation. Proposers are responsible for adhering to this limit. In cases where an investigator appears in these roles in two or more proposals, all proposals submitted with that person will be returned without review. **No exceptions will be made.**

Additional Eligibility Info:

If the proposed network is multi-organizational, a single organization must serve as the lead with other organizations as subawardees. **Separately submitted collaborative proposals will not be accepted.** Organizations ineligible to submit proposals to the NSF may not receive subawards. If such organizations are proposed as network participants, their participation is expected to be supported by non-NSF sources.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Letters of Intent *(required)*:

Potential proposers may not submit a proposal to this solicitation without first submitting a corresponding FastLane Letter of Intent (LOI) by the LOI deadline. Submitting a LOI does not obligate potential proposers to submit a full proposal.

- NSF will use the LOIs to: 1) gauge the size and range of the proposals that may be submitted in response to this solicitation; 2) enable earlier identification and better management of potential panelists; and 3) assist with identifying potential conflicts of interest that may affect review of proposals. In addition, NSF anticipates that writing an LOI for this competition will encourage early development of prospective partnerships among prospective network participants.
- In the "Synopsis" text data field of the LOI, PIs must provide a statement of the purpose and goals (scientific and other) of the proposed network, with sufficient detail to permit an appropriate selection of potential reviewers. PIs should also include a description of nodes of expertise that would be harnessed to achieve the network's goals.
- LOIs must include, in the "Other Comments" text data field, full names, institutional affiliations, and disciplines for all project Senior Personnel (including subawardees), and a rationale for their selection relative to the network's goals. This section should also include examples of the kinds of collaborative activities that would be undertaken to promote meaningful intellectual integration and synergy of efforts among members of the network.
- Estimated total funding request is required when submitting LOIs. A maximum of $750,000 total costs (i.e., direct plus indirect costs) over the full duration of the project may be requested.

Letter of Intent Preparation Instructions:

When submitting a Letter of Intent through FastLane in response to this Program Solicitation please note the conditions outlined below:

- Sponsored Projects Office (SPO) Submission is not required when submitting Letters of Intent.

- Submission of multiple Letters of Intent is not allowed

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=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.

See Chapter II.C.2 of the GPG 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 GPG instructions.

The full proposal must include only the main documents and supplementary documents described in Sections 1-10e below.

Proposals that exceed the specified page limitations or that include documents other than those specified below will be returned without review.

1. **Cover Sheet:** The proposal should have a short informative title that begins with "SL-CN:" For planning purposes, use September 30, 2016 as the award start date.
2. **Project Summary (1-page limit):** Provide a clear and concise description of the network including its purpose and goals, relating these to the SL Program goals and identifying the specific integrated interdisciplinary research question to be addressed by the proposed network. The summary should be written in the third person, and be informative to persons working in the same or related fields, and understandable to a scientifically or technically literate lay reader. Both of the NSF merit review criteria (intellectual merit and broader impacts) must be addressed in separate statements (see NSF Grant Proposal Guide for additional instructions).
3. **Table of Contents:** A table of contents is automatically generated for the proposal by FastLane or Grants.gov and cannot be edited.
4. **Project Description:** The Project Description must contain only Sections 4a through 4d described below and cannot exceed 15 pages, including tables and illustrations:

   Note: Results from Prior NSF Support should be part of the List of Participants Supplement (see section 10.a).

   a. **Purpose, Goals, and Research Plan:** Each network should have a statement of purpose that makes clear the network's focal scientific questions about learning, and the integrative, interdisciplinary approaches that will be used to address the questions. The significance of the SL questions to be addressed by the collaborative network should be described in the context of current national (and if relevant, international) activity. Proposers should describe the network's goals and the research projects that capitalize on the combination of expertise in the proposed network to achieve those goals and make transformative advances in our understanding of learning. Each proposal should describe a shared conceptual framework that enables research that will produce results that will enhance theories and methodological approaches or other positive impact across a range of disciplinary fields that participate in the SL. For example, what new thinking and/or solutions to problems will be enabled, through the application and testing of new theoretical frameworks, or the use of new methods or novel combinations of methods that capitalize on new institutional/investigator partnerships?

   b. **Management Plan for Network Structure, Interdisciplinarity and Integration:** Proposals must include a plan for how the network will be managed, including a description of network-wide procedures, practices, infrastructure, and other resources that will foster meaningful collaborations and enable the network to achieve its goals. Mechanisms for planning, decision making, conflict resolution, and allocating funds should be clearly articulated. The proposal should identify innovative activities that will be employed to facilitate collaborations among partners (e.g., exchange of graduate students or postdoctoral researchers; webinars, team-taught or distance-learning courses; shared access to data/cyberinfrastructure, facilities, and equipment). Each proposal should describe the key nodes of expertise represented by the network participants and how these will be harnessed to integrate scientific ideas across disciplines/professions and achieve the network's goals. Proposers should include a time-line for expected outcomes and milestones.

   Although collaborative networks may include multiple Co-PIs and/or different institutions, a single organization must serve as the submitting organization for each proposal. The PI is the designated contact person for the project and is expected to provide leadership in fully coordinating and integrating the activities of the network. In addition to investigators, network participants may include stakeholders from relevant organizations such as informal and formal educational institutions, family/preschool/workplace settings, defense/security agencies, non-profit organizations, and private industry, as appropriate. For projects with international partners, proposers should describe the mutual benefits that will accrue as a result of intellectual collaboration with foreign partner(s) that bring particular expertise, skills, facilities, sites and/or resources to the network, including the active engagement of U.S. students and early-career researchers in the international aspects of the collaborative network activities.

   c. **Broader Impacts:** The Project Description must contain, as a separate section within the narrative, a section labeled "Broader Impacts." This section should provide a discussion of the broader impacts of the proposed activities. For further information see the Grant Proposal Guide.

   d. **Strategic Planning and Assessment:** Each proposal should describe plans for the ongoing strategic planning and assessment of the proposed activity, including self-evaluation of progress toward the goals of the network.
5. **References Cited**
6. **Biographical Sketches:** A maximum of 10 biographical sketches (two-page limit per person) should be provided, including those for the PI, Co-PIs and other Senior Personnel. Biographical sketches for any international partners (limited to three) should be included and count towards the 10 biographical sketch limit.
7. **Budget and Allowable Costs:** Proposers should provide annual budgets for up to three years. The proposed budget can be up to $750,000 total costs over the full duration of the project and should be consistent with the costs for the network's partnership building and exploratory research activities. For proposals involving multiple organizations, a budget on the standard NSF budget form and corresponding budget justification should be submitted for each subawardee. Since this program does not accept separately submitted collaborative proposals, the submitting organization will manage funds allocated to other participating organizations as subawards. FastLane or Grants.gov will automatically generate cumulative budgets for the primary and subaward organizations. See the Grant Proposal Guide for additional requirements regarding subawardees. Organizations ineligible to submit to this program solicitation may not receive subawards. If they are part of the proposed network, their participation is expected to be supported by non-NSF sources.

   Funds may be requested to promote collaborative activities, such as short visits among member laboratories, exchange visits of students, sharing of unique facilities, establishment of a public web site, network retreats, partial support of workshops uniquely tied to the network activities, etc. Any well-justified activity that fulfills the goals of the program will be considered. Funds may also be used to support collaborative, exploratory research projects among the participants.

   Applicants should budget funds for the network Leaders (PIs and up to two Co-PIs) to attend a PI meeting at NSF headquarters in Arlington, VA, during year 1 of the project.

   Note that funds requested to support activities of the network participants, such as participant travel, materials and supplies for the network projects, and network retreats should be listed as "participant support" in the proposed budget, and managed by the submitting organization. Please refer to the Grant Proposal Guide for guidance regarding any proposed international travel.

   Budget Justification (up to 3 pages for the Lead and 3 pages for each subawardee): The Budget Justification must clearly explain how funds will be used in carrying out the project.

   International participation: NSF funds may not be used to support the expenses of the international scientists and students at their home organization. For projects that involve international partners, NSF funds may be used for the following: 1) Travel expenses for U.S. scientists and students participating in exchange visits integral to the SL collaborative network

project; 2) Expenses for international partners to participate in SL collaborative networking activities while in the US; and 3) Expenses for U.S. participants to conduct SL collaborative networking activities in the international partner's home laboratory. SL Network participants from institutions outside the U.S. should obtain support from their respective funding organizations for other expenses related to their participation in the network.

8. Current and Pending Support: Proposers should provide current and pending support information for the PI and Co-PIs only (i.e., only those persons listed on the cover sheet of the proposal).

9. Facilities, Equipment, and Other Resources (1-page limit): Proposers should provide a description of the facilities and major instrumentation that are available.

10. Special Information and Supplementary Documentation: In addition to the applicable items described in the Grant Proposal Guide, proposers should include the following information, clearly labeled, in the Supplementary Documentation section of the proposal (No other material will be allowed):

    a. List of Participants(4-page limit): For up to 10 participants, including the PI, Co-PIs and Senior Personnel, provide: name; project role; departmental and institutional/organizational affiliation; discipline(s). Significant results from prior NSF support for each participant may be included in this supplement. The participants listed should be the same ones for whom biographical sketches are included in the proposal.

    b. Conflicts of Interest list: Provide a list, in a single alphabetized table, with the full names and institutional affiliations of all people with conflicts of interest for the PI, Co-PI(s), other Senior Personnel, and any named personnel whose salary is requested in the project budget. Conflicts to be identified are: 1) PhD thesis advisors or advisees; 2) collaborators or co-authors, including postdocs, for the past 48 months; and 3) any other individuals or organizations with which the investigator has financial ties.

    c. Data Management Plan: All proposals must include a two-page (maximum) Data Management Plan as a Supplementary Document. This plan should describe issues related to information exchange, intellectual property rights, derived products, databases, software, model output, and materials sharing. For example, if the proposed activity is expected to result in community resources (such as databases or collections of biological materials), the Data Management Plan should present a clear plan for sharing of these resources not only among the network participants but with the scientific community at large. The Data Management Plan should also address plans for determining authorship or proper attribution of credit for peer-reviewed or other publications, Internet resources, etc. that may be expected to result from the activity. It should describe how the proposal will conform to the NSF policy on dissemination and sharing of research results. This plan will be reviewed as part of the intellectual merit and broader impacts of the proposal. See the Grant Proposal Guide Section II.C.2.j "Special Information and Supplementary Documentation" and NSF Proposal and Award Policies and Procedures Guide, Sections II.C.2.d.(i), II.C.2.j, II.D.8, "Dissemination and Sharing of Research Results" for further information about the implementation of this requirement.

    d. Postdoctoral Researcher Mentoring Plan: Each proposal that requests funding to support postdoctoral researchers must include, as a supplementary document, a description of the mentoring activities that will be provided for such individuals. Please be advised that if required, FastLane will not permit submission of a proposal that is missing a Postdoctoral Researcher Mentoring Plan. See the Grant Proposal Guide Section II.C.2.j "Special Information and Supplementary Documentation" and NSF Proposal and Award Policies and Procedures Guide for further information about the implementation of this requirement. The Postdoctoral Researcher Mentoring Plan is considered an integral part of the project and therefore subject to reviewer, panel, and program evaluation. Successful proposers will be expected to address this issue in annual and final project reports.

    e. Letters of Collaboration: This section could include any letters of collaboration from individuals or organizations that are integral parts of the proposed project, such as the involvement of collaborator organizations that are not supported by subawards or documentation of permission to access materials, data or other associated project activities. Letters should focus solely on affirming that the individual or organization is willing to collaborate on the project as specified in the project description of the proposal. No additional text, especially elaboration of the nature of activities to be undertaken by the collaborator and endorsements of the potential value or significance of the project for the collaborator, may be included. The template that should be used for the preparation of letters of collaboration is provided below.

    Letters of collaboration should not be provided for any individual designated as a principal investigator or senior personnel, nor are letters of collaboration required for any organization that will be a subawardee in the proposal budget.

    Each letter of collaboration must be signed by the designated collaborator. Requests to collaborators for letters of collaboration should be made by the PI well in advance of the proposal submission deadline, because they must be included at the time of the proposal submission. Letters deviating from this template are not accepted and may be grounds for returning the proposal without review.

Template to be used for letters of collaboration

To: NSF SL Program
From: _____
(Printed name of the individual collaborator or name of the organization and name and position of the official submitting this memo)

By signing below (or transmitting electronically), I acknowledge that I am listed as a collaborator on this SL collaborative network proposal, entitled "_____(proposal title)_____," with _____(PI name)_____ as the Principal Investigator. I agree to undertake the tasks assigned to me or my organization, as described in the project description of the proposal, and I commit to provide or make available the resources specified therein.

Signed: _____
Organization: _____
Date: _____

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

The proposed budget can be up to $750,000 total costs over the full duration of the project and should be consistent with the costs for the network's partnership building and exploratory research activities.

See additional budget information in the Proposal Preparation Instructions section of this solicitation under Budget and Allowable Costs.

C. Due Dates

- **Letter of Intent Due Date(s)** *(required)* (due by 5 p.m. proposer's local time):

    March 01, 2016

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

    April 04, 2016

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://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 *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.

Additional Solicitation Specific Review Criteria

In addition to the standard NSF merit review criteria, SL collaborative network proposals will be judged with respect to three different dimensions of integration:

- The first dimension is the integration of the network participants, with emphasis placed on the degree to which they will work together in an integrated way rather than working independently.
- The second dimension is the integration of the research approaches, activities and methods, with emphasis again placed

on breadth as well as coherent integration of different kinds of approaches and methods from different disciplines.
- The third dimension is the integration of the expected intellectual significance of the research results, with emphasis placed on the degree to which results are expected to enhance theories and/or methodological approaches or have other stimulating and/or catalytic impact across a range of disciplinary fields that participate in SL studies. In what ways does the proposed network support work that is high-impact and otherwise not possible, and/or enables the researcher to capture new opportunities relevant to SL goals?

Proposals that simply employ measures or approaches from one discipline to research questions in another are not considered integrated. For example, taking EEG measurement during literacy instruction is not integrated unless the results inform understanding of the neural bases of reading as well as theories/practices of literacy instruction.

For proposals involving international collaborations, reviewers will consider: mutual benefits, true intellectual collaboration with the foreign partner(s), benefits to be realized from the expertise and specialized skills, facilities, sites and/or resources of the international counterpart, and active engagement of U.S. students and early-career researchers in the international aspects of the collaborative network activities.

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 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 *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:

- Soo-Siang Lim, SBE/BCS, telephone: (703) 292-7878, email: slim@nsf.gov

- Charles Kalish, SBE/BCS, telephone: (703) 292-7369, email: ckalish@nsf.gov

- Gregg Solomon, EHR/DRL, telephone: (703) 292-8333, email: gesolomo@nsf.gov

- Tatiana Korelsky, CISE/IIS, CISE/CNS, telephone: (703) 292-8930, email: tkorelsk@nsf.gov

- Elliot Douglas, ENG/EEC, telephone: (703) 292-7051, email: edouglas@nsf.gov

- Bruce P. Palka, MPS/DMS, telephone: (703) 292-4856, email: bpalka@nsf.gov

- Anne L. Emig, OD/OISE, telephone: (703) 292-7241, email: aemig@nsf.gov

- Michelle Elekonich, BIO/IOS, telephone: (703) 292-7202, email: melekoni@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 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**   (703) 292-5111
>   (NSF Information Center)**:**
>
> - **TDD (for the hearing-impaired):**   (703) 292-5090
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>   or telephone: (703) 292-7827
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> - **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
Office of the General Counsel
National Science Foundation
Arlington, VA 22230

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