STEM-C Partnerships: Computing Education for the 21st Century (STEM-CP: CE21)

PROGRAM SOLICITATION
NSF 14-523

REPLACES DOCUMENT(S):
NSF 12-609

National Science Foundation

Directorate for Computer & Information Science & Engineering
    Division of Computer and Network Systems
    Division of Computing and Communication Foundations
    Division of Information & Intelligent Systems
    Division of Advanced Cyberinfrastructure

Directorate for Education & Human Resources

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

    March 18, 2014

IMPORTANT INFORMATION AND REVISION NOTES

This solicitation has been revised to incorporate into the Other Information section a newly issued publication jointly developed by National Science Foundation and the Institute of Education Sciences in the U.S. Department of Education entitled, *Common Guidelines for Education Research and Development*. The Guidelines describe six types of research studies that can generate evidence about how to increase student learning. Research types include those that generate the most fundamental understandings related to education and learning; examinations of associations between variables; iterative design and testing of strategies or interventions; and assessments of the impact of a fully-developed intervention on an education outcome. For each research type, there is a description of the purpose and the expected empirical and/or theoretical justifications, types of project outcomes, and quality of evidence.

The Guidelines publication can be found on the NSF website with the number NSF 13-126 (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf13126). A set of FAQs regarding the Guidelines are available with the number NSF 13-127 (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf13127). Grant proposal writers and PIs are encouraged to familiarize themselves with both documents and use the information therein to help in the preparation of proposals to NSF.

Revisions to this Solicitation from earlier ones of Computing Education for the 21st Century

STEM-C Partnerships combines and advances the efforts of both the former Math and Science Partnership (MSP) and the former Computing Education for the 21st Century (CE21) programs. STEM-CP: CE21 modifies the earlier CE21 by:

- Merging the previous Broadening Participation and Computing Education Research tracks into a single **Broadening Participation and Education in Computing** (BPEC) track;
- Requiring a Broadening Participation component for all proposals on the **CS 10K** track; and
- Adding a third track, **STEM-C Partnerships Computer Science Education Expansion**, that aims to expand the work of previously funded NSF MSP Partnerships to increase the number of qualified computer science teachers and the number of high schools with rigorous computer science courses.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

    STEM-C Partnerships: Computing Education for the 21st Century (STEM-CP: CE21)

Synopsis of Program:

    The STEM-C (Science, Technology, Engineering and Mathematics, including Computing) Partnerships program is a major research and development effort of two NSF Directorates, the Directorate for Education and Human Resources (EHR) and the Directorate for Computer and Information Science and Engineering (CISE), which supports innovative partnerships to improve teaching and learning in science, technology, engineering, and mathematics (STEM) disciplines. STEM-C Partnerships combines and advances the efforts of both the former Math and Science Partnership (MSP) and the former Computing Education for the 21st Century (CE21) programs. It is critical that our nation maintain a competent, competitive and creative STEM workforce, including teachers. Therefore, NSF aims to inspire and motivate the next generation of that workforce, while ensuring that it has the

skills, competencies, and preparation to be successful. As we transition to a global, knowledge-based economy that is often driven by information technology and innovation, it is increasingly important that STEM workforce preparation includes a strong foundation in computing. Thus, the STEM-C Partnerships program addresses both the need for advances in K-12 STEM education generally, as well as the need to elevate the inclusion of computer science education.

From MSP, STEM-C Partnerships embraces any of the STEM disciplines—within the natural sciences, mathematics, engineering, or computer science—and maintains its commitment to institutional partnerships and opportunities for funding of Targeted proposals in one of four focal areas: Community Enterprise for STEM Teaching and Learning, Current Issues Related to STEM Content, Identifying and Cultivating Exceptional Talent, and K-12 STEM Teacher Preparation. From CE21, STEM-C Partnerships adds a discipline-specific focal area on the teaching and learning of computing and computational thinking, a strong commitment to broadening participation in computing, an emphasis on in-service teacher professional development, and support for the implementation of computer science courses at the high school level. It is expected that the merging of the MSP and CE21 programs will strengthen both and serve as a model for future incorporation of discipline-specific concerns into programs focused more broadly on STEM.

The STEM-C Partnerships program supports Partnerships that promote effective K-12 STEM education, building knowledge of teaching and learning in ways that deepen understanding and stimulate further exploration of STEM education in both in- and out-of-school settings. The Partnerships' cross-disciplinary teams call upon the expertise and research perspectives of learning scientists, including cognitive scientists, educational, developmental and social psychologists, social scientists and education researchers, as well as STEM, discipline-specific teachers, faculty, researchers, and scientists. The Partnerships provide the context and environment for the effective preparation, professional development, and ongoing support of K-12 teachers. Changes at the undergraduate level related to the preparation of K-12 STEM teachers are an implicit expectation of the work; in this way, the STEM-C Partnerships is a K-16 endeavor. Projects are encouraged to look at scalable models of effective learning and professional development mediated, perhaps, by evolving computational devices and advances in cyberinfrastructure, as well as ongoing developments in models, resources, tools, and their applications to learning, content, delivery, and pedagogy. The program supports transformative research and its use by varied research, development, and implementation communities. The needs of a particular Partnership related to advancing the teaching and learning of any of the STEM disciplines at the K-12 level should drive the focus of the Partnership's work. The inclusion of computer science, computational thinking, computational science or computing in K-12 STEM instruction is welcome, but not required.

All STEM-C Partnerships projects serve as models that have a sufficiently strong evidence/research base to improve STEM education outcomes for all students. The STEM-C Partnerships program requires institutional commitment to evidence-based teaching and learning which improves the achievement of all students studying STEM, with particular attention to educational practices that are effective for groups underrepresented in STEM— women, minorities (African-Americans, Hispanics, Native Americans, Alaska Natives, Native Hawaiians and other Pacific Islander territories), and students with disabilities.

STEM-CP: CE21

Through this STEM-CP: CE21 solicitation, NSF seeks to support three types of awards. **Broadening Participation and Education in Computing** (BPEC) awards aim to build a rich knowledge base on the effective teaching and learning of computing skills and concepts, with particular attention to educational practices that are effective for students from underrepresented groups. **CS 10K** awards aim to develop the knowledge and evidence-based foundation needed to support the teaching of introductory rigorous, academic computing courses in high schools. STEM-C Partnerships **Computer Science Education Expansion** (CSE-Expansion) awards aim to expand the work of previously funded NSF MSP Partnerships to increase the number of qualified computer science teachers and the number of high schools with rigorous computer science courses.

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.

- Janice Cuny, Program Director, CISE Directorate, 1105, telephone: (703) 292-8900, email: jcuny@nsf.gov

- Jeff Forbes, Program Director, CISE Directorate, 1175, telephone: (703) 292-4291, email: jforbes@nsf.gov

- Kathleen Bergin, Program Director, EHR Directorate, 865, telephone: (703) 292-5171, email: kbergin@nsf.gov

- Arlene de Strulle, Program Director, EHR Directorate, 885, telephone: (703) 292-8620, email: adestrul@nsf.gov

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

- 47.070 --- Computer and Information Science and Engineering
- 47.076 --- Education and Human Resources

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 16 to 26 annually.

Anticipated Funding Amount: $10,000,000 per year (pending the availability of funds and the quality of proposals)

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Universities and Colleges - Universities and two- and four-year colleges (including community colleges)

accredited in, and having a campus located in, the US acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.
- State and Local Governments: State educational offices or organizations and local school districts.

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: 2

An individual may participate as PI or Co-PI in no more than two (2) proposals submitted to a single deadline in response to this solicitation, although individuals may participate in additional proposals as Senior Personnel. In addition, an individual may serve as Principal Investigator or co-Principal Investigator on only one STEM-C Partnerships Computer Education Expansion proposal. These eligibility conditions will be strictly enforced. In the event that an individual exceeds either of the limits, any proposals submitted after that limit was reached will be returned without review. No exceptions will be made.

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=grantsgovguide).

B. Budgetary Information

- **Cost Sharing Requirements:** Inclusion of voluntary committed cost sharing is prohibited.

- **Indirect Cost (F&A) Limitations:** Not Applicable

- **Other Budgetary Limitations:** Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

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

    March 18, 2014

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: Additional award conditions apply. Please see the full text of this solicitation for further information.

Reporting Requirements: Additional reporting requirements apply. Please see the full text of this solicitation for further information.

TABLE OF CONTENTS

I. INTRODUCTION

The STEM-C Partnerships program is a major research and development effort of two NSF Directorates, the Directorate for Education and Human Resources and the Directorate for Computer and Informational Science and Engineering. STEM-C Partnerships combines and advances the efforts of both the former Math and Science Partnership (MSP) and the former Computing Education for the 21st Century (CE21) programs. It is critical that our nation maintain a competent, competitive and creative STEM workforce, including teachers. Therefore, a goal of the STEM-C Partnerships program is to inspire and motivate the next generation of the STEM workforce, while ensuring that it has the skills, competencies, and preparation to be successful. Since aspiring teachers acquire a depth of understanding in the sciences, mathematics, engineering, and computer science during their undergraduate years, the STEM-C Partnerships is also a K-16 effort seeking innovations in policies, pedagogies, programs, and/or STEM disciplinary courses that support STEM teachers. A second goal of the program is to elevate the inclusion of computer science in K-12 education.

Through this solicitation, NSF seeks to support three types of awards: Broadening Participation and Education in Computing, CS 10K, and STEM-C Partnerships Computer Science Education Expansion.

II. PROGRAM DESCRIPTION

Vision

The motivating vision for the STEM-CP: CE21 program is that of a robust computing research community and a globally competitive, 21st Century workforce, both poised to apply computation—its foundational concepts, methods, and tools—to a broad range of societal challenges and opportunities. In achieving that vision, the computing community will have to address issues of K-12 education and issues of underrepresentation. With respect to K-12, the community must address foundational issues, that is, the need for an evidence-based understanding of the teaching and learning of computing concepts, as well as implementation issues, that is, the lack of rigorous, academic computing curricula in most schools. With respect to underrepresentation, the computing community must address the very low participation rates of large segments of our population, including women, minorities (African-Americans, Hispanics, Native Americans, Alaska Natives, Native Hawaiians and other Pacific Islander territories), and students with disabilities.

STEM-CP: CE21 is a beginning. It aims to build the foundation for increasing the number and diversity of students who develop and practice computational competencies and who have the background necessary to successfully pursue degree programs in computing-related and computationally-intensive fields of study. In aggregate, STEM-CP: CE21 projects will contribute to our understanding of how diverse student populations are engaged and retained in computing, how they learn its fundamental concepts, and how they develop computational competencies that position them to contribute to an increasingly computationally-empowered workforce.

Strategies

This solicitation seeks proposals on three tracks: **Broadening Participation and Education in Computing**, **CS 10K**, and **Computer Science Education Expansion**.

Track 1. Broadening Participation and Education in Computing (BPEC). BPEC awards will fund research that contributes to the creation of a rich knowledge base informing our understanding of the effective teaching and learning of computing skills and concepts. The range of topics for BPEC projects is quite broad. It includes building an evidence base for pedagogy or student learning of computing fundamentals at the elementary, middle, or high school level. It includes computational concepts and skills as infused across the curriculum or as taught in computing courses, in either informal or formal educational settings. Projects may, for example,

- conduct basic research on the teaching and learning of computational competencies in face-to-face or virtual settings;
- design, develop, test, validate, and refine materials, measurement tools, and methods for teaching in specific contexts; and/or
- implement promising small-scale interventions in order to study the efficacy of those interventions with particular groups underrepresented in computing educational and workforce settings.

Topics of particular interest for BPEC include research on learning progressions, evidence-based pedagogical techniques, and effective contexts for introducing computing.

Because underrepresentation is such a persistent and significant problem in the computing disciplines, all BPEC projects must address underrepresentation as a major focus. It will not be considered sufficient, for example, to situate the work in schools with a

high minority enrollment, or to include a member of an underrepresented group on the project team, or to propose interventions that appeal to "all students." While these are all potentially strong aspects of any proposal, successful BPEC proposals will likely also describe the demographics of their target audience, demonstrate knowledge of the relevant literature on underrepresentation and awareness of best practices and related efforts, have a concrete plan for improving representation, and have clear metrics and methodologies for documenting outcomes. Targeted underrepresented groups include women, minorities (African-Americans, Hispanics, Native Americans, Alaska Natives, Native Hawaiians and other Pacific Islander territories), and students with disabilities, though proposers may target other demographic groups if they are able to document computing-specific underrepresentation.

BPEC proposals must include a strong research component, and the proposing team must include sufficient expertise in educational research, learning sciences and issues of underrepresentation. Proposed efforts should have a strong theoretical and empirical rationale informed by the current literature. The design of an effective BPEC project necessarily begins with the identification of an evidence-based hypothesis about how computing is taught or learned within the target population. The proposal should then articulate a detailed research plan that describes the approach and methodology that will be used in testing that hypothesis. The research questions and design should be explicit and they should be clearly linked to the proposed work. A range of research and/or evaluation methods might be appropriate. Proposals should be attentive to the *Common Guidelines for Education Research and Development* particularly related to Foundational Research, Early Stage/Exploratory Research or preliminary Design and Development Research.

BPEC projects that implement novel interventions should have a detailed evaluation plan that includes assessments of student/teacher (and possibly faculty) learning outcomes and attitudinal changes. The evaluation should be designed and performed by an independent evaluator, though data collection and routine tasks can be carried out by other members of the project team. In most cases, the independent evaluator will be from outside the proposing institution, or at least from a different organizational unit than the PIs and Co-PIs. Collected data must be disaggregated by gender, ethnicity, socio-economic status, and disability unless precluded by state or local laws. For further information on evaluation, proposers may want to consult the 2010 User Friendly Handbook for Project Evaluation (http://www.westat.com/pdf/projects/2010ufhb.pdf) and other resources.

BPEC proposers are also encouraged to leverage the resources provided by the existing BPC-A Alliances (http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503593).

Track 2: CS 10K. Projects from this track will develop the knowledge and evidence-based foundation needed for the CS 10K Project, which aims to have rigorous, academic computing courses taught in 10,000 high schools, by 10,000 well-trained teachers. CS 10K efforts focus primarily on two new courses: Exploring Computer Science (http://exploringcs.org) and CS Principles, an entirely new Advanced Placement (AP) course (http://collegeboard.org/csprinciples) that will be offered officially starting in 2016. CS 10K supports efforts that will lead to the wide-scale deployment of ECS and CS Principles. Proposers can choose to focus on other courses, but they must then show how their work can be expected to have widespread adoption and comparable sustainable, national significance in terms of both increasing and broadening participation.

Topics of particular interest for this track are scalable approaches to the preparation, professional development, and ongoing support of teachers. Projects can choose from a wide range of related activities, including strategies for recruiting teachers, models for online and remote delivery of professional development and course content, approaches to pedagogy, and the ongoing, face-to-face and online support for teachers. With respect to online support for teachers, proposers are encouraged to address strategies that could be adopted in the existing CS 10K Community of Practice (http://cs10kcommunity.org). Other possible activities include the development of course materials and assessments, and strategies for building appropriate partnerships.

All CS 10K projects must have a strong component addressing underrepresentation with specific activities aimed at the inclusion of teachers and/or students from at least one of the underrepresented groups: women, minorities (African-Americans, Hispanics, Native Americans, Alaska Natives, Native Hawaiians and other Pacific Islander territories), and students with disabilities, though proposers may target other demographic groups if they are able to document computing-specific underrepresentation. Proposers are encouraged to leverage the resources provided by the existing BPC-A Alliances (http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503593). All CS 10K efforts should be informed by the current literature on educational research, as well as the best practices and current literature on broadening participation.

CS 10K projects should identify expected institutional change—including change in policy, practices, or programs—that will result from the work and contribute to its sustainability.

Proposers of CS 10K proposals are encouraged to draw on partnerships among the computing community, the teaching and learning community, institutions of learning, including primary, secondary and post-secondary institutions and organizations, and other professional and community stakeholders. Proposers are strongly encouraged to include university researchers—both from computing and from education departments—on their teams.

All CS 10K projects must pose one or more evaluation questions, and an associated evaluation design that links project goals to student/teacher learning (and possibly other) outcomes. Successful proposals will likely address a narrow set of strategies that are well evaluated. The evaluation should be led by an external evaluator, and should provide for continuous refinement of the project. Collected data must be disaggregated by gender, ethnicity, socio-economic status, and disability unless precluded by state or local laws. For further information on evaluation, proposers may want to consult the *2010 User Friendly Handbook for Project Evaluation* (http://www.westat.com/pdf/projects/2010ufhb.pdf) and other resources.

All CS 10K grantees will be required to participate in an overall program evaluation.

Finally, as we transition to the STEM-C Partnerships program, CS 10K projects are encouraged to include a research component. If they do, they should be attentive to the *Common Guidelines for Education Research and Development* particularly related to Early Stage/Exploratory Research or preliminary Design and Development Research.

Track 3: STEM-C Partnerships Computer Science Education Expansion (CSE-Expansion) awards are open only to NSF MSP Partnerships that have been previously funded to work at the high school level and who seek to expand their work to increase the number of qualified computer science teachers and the number of high schools with rigorous computer science education courses incorporated into the academic program. The CSE-Expansion is intended to help advance the NSF CS 10K Project (http://dx.doi.org/10.1145/2189835.2189847) through development of partnerships that support, disseminate, and through research improve high school computer science courses and curricula. Attention to pedagogical practices, teacher methods courses, teacher professional development for high school computer science teachers, as well as to promising practices for increasing the participation of students from underrepresented groups are all appropriate activities which may be supported. Proposers seeking funding through CSE-Expansion may consider implementation of one or both of the following CS 10K supported computer science courses: Exploring Computer Science (http://exploringcs.org) and CS Principles, an entirely new Advanced Placement (AP) course (http://collegeboard.org/csprinciples) that will be officially launched starting in 2016. Proposers may choose to focus on other academic high school computer science courses, but must demonstrate how their work can be expected to have comparable sustainable, national significance to these two courses in terms of both increasing and broadening participation. Proposals for CSE-Expansion funding must include a research question(s) and research design with appropriate methodology. Inclusion of computer scientists in the Partnership is required. Proposals for this track should be submitted as supplements from current MSP awardees or

as new proposals from past MSP awardees.

Please refer to the STEM-C Partnerships: MSP solicitation (NSF 14-522) for further requirements for CSE-Expansion proposals.

In Conclusion

The scope of the STEM-CP: CE21 program is intentionally broad. It encompasses educational research, engagement and retention activities, and the teaching and learning of computational competencies in both disciplinary-based computer science classes, as well as infused across the curriculum, in both formal and informal educational settings, and aimed at students, as well as their teachers. The sharing and dissemination of STEM-CP: CE21 project outcomes will be accomplished in part through strategies proposed by each individual project, and in part through the coordinated efforts of PIs who will be required to participate in and provide data to enable program-wide evaluation. STEM-CP: CE21 PIs will be required to keep the STEM-CP: CE21 community apprised of their work by participating in PI/Community meetings and by maintaining an up-to-date website linked through a community portal.

The CISE community is encouraged to apply, as appropriate, to the related programs in the Directorate for Education and Human Resources (EHR). These include STEM-CP: MSP, Improving Undergraduate STEM Education (IUSE), the Robert Noyce Teacher Scholarship Program, Discovery Research K-12 DRK-12, Research on Education and Learning (REAL), Innovative Technology Experiences for Students and Teachers (ITEST), and Advanced Technological Education (ATE).

REFERENCES

Briggs, A., & Snyder, L. (Eds) (2012) Computer Science and the CS 10K Initiative [Special Section]. *ACM Inroads*, 3, 2 (June 2012), 29-85.

National Research Council (NRC, 2010) Preparing Teachers: Building Evidence for Sound Policy. Washington, DC: National Academy Press.
http://www.nap.edu/catalog.php?record_id=12882

National Research Council (NRC, 2011) Successful K-12 STEM Education: Identifying Effective Approaches in Science, Technology, Engineering, and Mathematics. Washington, DC: National Academy Press.
http://www.nap.edu/catalog.php?record_id=13158

U.S. Department of Education, Office of Educational Technology. (2013). Expanding Evidence Approaches for Learning in a Digital World, Washington, D.C.
http://www.ed.gov/edblogs/technology/files/2013/02/Expanding-Evidence-Approaches.pdf

Westat (2010) The 2010 User-Friendly Handbook for Project Evaluation, Frechtling, J., Mark, M., Rog, D., Thomas, T., Frierson, H., Hood, S., and Hughes, G. Rockville, MD.
http://www.westat.com/Westat/pdf/news/UFHB.pdf

III. AWARD INFORMATION

Anticipated Type of Award: Continuing Grant or Standard Grant

Estimated Number of Awards: 16 to 26 annually.

Anticipated Funding Amount: $10,000,000 per year (pending the availability of funds and the quality of proposals). BPEC projects will be funded at a level of up to $600,000 total over 3 years. CS 10K projects will be funded at a level of up to $1,000,000 total over 3 years. CSE-Expansion projects will be funded as standard grants or supplements at a level of up to $500,000 total over 3 years.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in, the US acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.
- State and Local Governments: State educational offices or organizations and local school districts.

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: 2

An individual may participate as PI or Co-PI in no more than two (2) proposals submitted to a single deadline in response to this solicitation, although individuals may participate in additional proposals as Senior Personnel. In addition, an individual may serve as Principal Investigator or co-Principal Investigator on only one STEM-C Partnerships Computer Education Expansion proposal. These eligibility conditions will be strictly enforced. In the event that an individual exceeds either of the limits, any proposals submitted after that limit was reached will be

returned without review. No exceptions will be made.

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=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

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

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. 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.

The following information SUPPLEMENTS (not replaces) the guidelines provided in the NSF Grant Proposal Guide (GPG) and NSF Grants.gov Application Guide.

Proposal Titles: Proposal titles must begin with the type of proposal being submitted:

BPEC or **CS 10K** or **CSE-Expansion**

The proposal type should be followed with a colon then the title of the proposed project. If the proposal is part of a collaborative submission from multiple organizations, each project title must have the words "Collaborative Research:" before the proposal type.

Project Description: Standard page limits apply for BPEC and CSE-Expansion projects. The body of the Project Description of a CS 10K project proposal must fit within the standard 15-page limit, but an additional one to five pages may be included for Results from Prior NSF support.

The Project Description for STEM-CP: CE21 proposals should include the following sections:

Project Goals and Outcomes. Clearly describe the goals and desired outcomes of the proposed work and how the project will contribute to our understanding of the teaching and learning of computing for diverse student populations. Provide a careful delineation of the core computing concepts and/or computational competencies to be developed and assessed. Define the scope and significance of any intervention, including the populations to be served as well as the duration and intensity of the interventions. Describe the research base on which the work builds. Discuss the sustainability of impact in terms of the infrastructure, institutional change, or artifacts that can be expected to last beyond the funding period.

Implementation Plan. Describe in detail the activities to be undertaken to realize the project goals and anticipated outcomes. Detail how participants will be recruited. Highlight the potential for successfully aligning the work with other similar programs, projects and efforts (NSF-supported or otherwise). Describe the plans to disseminate the results of the project.

Evaluation Plan. Describe a rigorous research and/or evaluation plan designed to guide project progress and measure its outcomes. Please note that many, if not all, STEM-CP: CE21 projects will involve human subjects and, therefore, will need Institutional Review Board (IRB) approval from the participating institutions before NSF can make relevant awards.

Partnership Plan. (Required for CS 10K proposals only). Describe how the participating organizations will work

together to realize the project goals and provide evidence that all key stakeholders (including faculty and administrators) have participated in project planning and design. Describe the institutional and organizational commitment to realizing the project goals and outcomes. Describe the organizational structures, mechanisms for communication, and responsibilities of all PIs, Co-PIs, and Senior Personnel.

Supplementary Documents. The only documents that can appear as Supplementary Documents are the following:

- Letters of support that document the commitment of participating organizations unless otherwise covered in the Project Description.
- A Postdoctoral Researcher Mentoring Plan if the proposal requests support for one or more postdoctoral researchers.
- A Data Management Plan (required).
- Two lists are required for checking Conflicts of Interests with reviewers:

    1. A list of Project Personnel and Partner Institutions *(Note - In collaborative proposals, only the lead institution should provide this information)*:

       Provide current, accurate information for all personnel and institutions involved in the project. NSF staff will use this information in the merit review process to manage conflicts of interest. The list should include all PIs, Co-PIs, Senior Personnel, paid/unpaid Consultants or Collaborators, Subawardees, Postdoctoral Researchers, and project-level advisory committee members. This list should be numbered and include (in this order) Full name, Organization(s), and Role in the project, with each item separated by a semi-colon. Each person listed should start a new numbered line.

    2. A list of Collaborators *(Note: In collaborative proposals, only the lead institution should provide this information)*:

       Provide current, accurate information for all active or recent collaborators of personnel and institutions involved in the project. NSF staff will use this information in the merit review process to manage conflicts of interest. This list -- distinct from (1) above -- must include all active or recent Collaborators of all personnel involved with the proposed project. Collaborators include any individual with whom any member of the project team -- including PIs, Co-PIs, Senior Personnel, paid/unpaid Consultants or Collaborators, Subawardees, Postdoctoral Researchers, and project-level advisory committee members -- has collaborated on a project, book, article, report, or paper within the preceding 48 months; or co-edited a journal, compendium, or conference proceedings within the preceding 24 months. This list should be numbered and include (in this order) Full name and Organization(s), with each item separated by a semi-colon. Each person listed should start a new numbered line.

No other Supplementary Documents are permitted.

B. Budgetary Information

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited

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):

    March 18, 2014

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 *Empowering the Nation Through Discovery and Innovation: NSF Strategic Plan for Fiscal Years (FY) 2011-2016*. 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 core strategies 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 provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students, and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the variety of learning perspectives.

Another core strategy in support of NSF's mission is broadening 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 elaboration of the general NSF review criteria, reviewers will also be asked to review proposals by considering the following questions:

- Is the expertise represented on the project team appropriate for the proposed work?
- Is the potential high for sustainable, national significance in terms of both increasing and broadening participation in computing?

In addition, the review of CS 10K proposals should also consider the following:

- Is the partnership for the proposed intervention appropriate and is it likely to support sustainable change?

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.

Special Award Conditions: CE21 awardees will be required to keep the STEM-CP: CE21 community apprised of their work by participating in PI/Community meetings and by maintaining an up-to-date website linked through the CS 10K Community of Practice (cs10kcommunity.org).

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.

Additional Reporting Requirements:

STEM-CP: CE21 PIs will be required to participate in and provide data to a program-wide evaluation.

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:

- Janice Cuny, Program Director, CISE Directorate, 1105, telephone: (703) 292-8900, email: jcuny@nsf.gov

- Jeff Forbes, Program Director, CISE Directorate, 1175, telephone: (703) 292-4291, email: jforbes@nsf.gov

- Kathleen Bergin, Program Director, EHR Directorate, 865, telephone: (703) 292-5171, email: kbergin@nsf.gov

- Arlene de Strulle, Program Director, EHR Directorate, 885, telephone: (703) 292-8620, email: adestrul@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 .

This solicitation has been revised to incorporate a newly issued publication jointly developed by National Science Foundation and the Institute of Education Sciences in the U.S. Department of Education entitled, *Common Guidelines for Education Research and Development*. The Guidelines describe six types of research studies that can generate evidence about how to increase student learning. Research types include those that generate the most fundamental understandings related to education and learning; examinations of associations between variables; iterative design and testing of strategies or interventions; and assessments of the impact of a fully-developed intervention on an education outcome. For each research type, there is a description of the purpose and the expected empirical and/or theoretical justifications, types of project outcomes, and quality of evidence.

The Guidelines publication can be found on the NSF website with the number NSF 13-126 (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf13126). A set of FAQs regarding the Guidelines are available with the number NSF 13-127 (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf13127). Grant proposal writers and PIs are encouraged to familiarize themselves with both documents and use the information therein to help in the preparation of proposals to NSF.

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

- **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 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

The National Science Foundation, 4201 Wilson Boulevard, Arlington, Virginia 22230, USA
Tel: (703) 292-5111, FIRS: (800) 877-8339 | TDD: (800) 281-8749

Last Updated:
11/07/06
Text Only