

# NSF Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM)

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## PROGRAM SOLICITATION

NSF 15-581

REPLACES DOCUMENT(S):  
NSF 12-529



National Science Foundation

Directorate for Education & Human Resources  
Division of Undergraduate Education

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

September 22, 2015

May 16, 2016

## IMPORTANT INFORMATION AND REVISION NOTES

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A well-educated science, technology, engineering, and mathematics (STEM) workforce is essential to maintain the competitiveness of the U.S. in the global economy. Since its establishment, the S-STEM program's scholarships combined with its curricular and co-curricular activities (e.g., curriculum, professional, and workforce development activities) have been found to positively affect retention, success, and graduation in STEM of academically talented students with demonstrated financial need.

To enhance this success and to continue to address the critical need for a quality STEM workforce, the program will support up to \$650,000 for Strand 1 - Institutional Capacity Building projects; and up to \$1.0 million for Strand 2 - Design and Development Type 1 Single Institution projects. Of the total amount requested, at least 60% of the funds must support scholarships to low-income academically talented students with demonstrated financial need. Funds must be requested for high quality extant curriculum development and professional and workforce development activities that include the implementation and investigation of project activities and conducting project evaluation. The program also will support Strand 2 - Design and Development Type 2 multi-institutional collaborative efforts up to \$5 million to fund scholarships and the implementation and testing of a common set of curricular and co-curricular activities across institutions. The level of funding requested must be based on the focus, scope, and size of the effort. For these types of projects, at least 60% of the funds must support scholarships.

Changes in the maximum amount of an award and the allocation of funds for project activities ensure sufficient funds for scholarships, while allowing for increased curricular and co-curricular supports for students. These changes also ensure adequate funds to establish an ecosystem of supports necessary for student success and to investigate the effectiveness of those supports. In addition, the allocation of funds allows institutions that enroll high numbers of low-income students the flexibility to address local needs. For example, an institution could choose to allocate a larger percentage of funds for scholarships because that is the local need.

For all proposed projects, the total amount requested includes direct and indirect costs.

For awards with a duration of 5 years, a Third-Year Review is required.

This revision seeks to foster greater success of S-STEM scholars and benefits for other low-income students; to advance the adoption of evidence-based curriculum, professional, and workforce development activities; and to determine the effectiveness of those activities and other factors for recruitment, retention, and graduation in STEM.

The NSF S-STEM program does not award scholarships directly to students. Students interested in scholarships should contact their institutions' Financial Aid Office.

### Important Information

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised NSF Proposal & Award Policies & Procedures Guide (PAPPG) (NSF 15-1), which is effective for proposals submitted, or due, on or after December 26, 2014. The PAPPG is consistent with, and, implements the new Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance) (2 CFR § 200).

## SUMMARY OF PROGRAM REQUIREMENTS

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### General Information

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**Program Title:**

## Synopsis of Program:

The National Science Foundation (NSF) Scholarships in Science, Technology, Engineering, and Mathematics program (S-STEM) addresses the need for a high quality STEM workforce in areas of national priorities. The program seeks to increase the success of low-income academically talented students with demonstrated financial need who are pursuing associate, baccalaureate, or graduate degrees in science, technology, engineering, and mathematics (STEM). The program provides awards to Institutions of Higher Education (IHEs) to fund scholarships, and to enhance and study effective curricular and co-curricular activities that support recruitment, retention, student success, and graduation in STEM. The S-STEM program encourages collaborations among different types of partners: Partnerships among different types of institutions, collaborations of STEM faculty and educational and social science researchers, or partnerships among institutions of higher education and business and industry. The program seeks: 1) to increase the number of low-income academically talented students with demonstrated financial need obtaining degrees in STEM and entering the STEM workforce or graduate study; 2) improve the education of future scientists, engineers, and technicians, with a focus on academically talented low-income students; and 3) advance understanding of the factors or curricular and co-curricular activities affecting the success of low-income students.

In this solicitation, the acronym STEM stands for science, technology, engineering, and mathematics that includes biological sciences (except medicine and other clinical fields); physical sciences (including physics, chemistry, astronomy, and materials science); mathematical sciences; computer and information sciences; geosciences; engineering; and technology areas associated with the preceding disciplines (for example, biotechnology, chemical technology, engineering technology, information technology, etc.)

The S-STEM program particularly encourages proposals from 2-year institutions, Minority Serving Institutions (MSIs), and urban public and rural institutions.

Students who are interested in scholarships should contact their Institution's Office of Financial Aid to inquire about this and other scholarship opportunities. Students who are awarded S-STEM scholarships must be U.S. citizens, permanent residents, nationals, or refugees.

## 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.*

- Connie K. Della-Piana, telephone: (703) 292-5309, email: [cdellapi@nsf.gov](mailto:cdellapi@nsf.gov)
- Paul Tymann, telephone: (703) 292-2260, email: [ptymann@nsf.gov](mailto:ptymann@nsf.gov)
- John Krupczak, telephone: (703) 292-4647, email: [jkrupcza@nsf.gov](mailto:jkrupcza@nsf.gov)

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

- 47.076 --- Education and Human Resources

## Award Information

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**Anticipated Type of Award:** Standard Grant or Continuing Grant

**Estimated Number of Awards:** 60 to 80

**Anticipated Funding Amount:** \$50,000,000 to \$70,000,000

\$50,000,000 to \$70,000,000 annually, for new and continuing awards, subject to availability of funds. The program supports three types of projects. Awards for Institutional Capacity Building projects should not exceed \$650,000. Awards for Design and Development Type 1 Single Institution projects should not exceed \$1.0 million. Awards for Design and Development Type 2 Multi-Institutional Consortia projects should not exceed \$5.0 million.

For Collaborative Proposals (see [http://www.nsf.gov/pubs/policydocs/pappguide/nsf15001/gpg\\_2.jsp#IID5](http://www.nsf.gov/pubs/policydocs/pappguide/nsf15001/gpg_2.jsp#IID5)), the **combined** budgets of the collaborating organizations should conform to the budgetary limits specified in this solicitation.

## Eligibility Information

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### Who May Submit Proposals:

Proposals may only be submitted by the following:

- Institutions of higher education (as defined in section 101 (a) of the Higher Education Act of 1965) in the United States and its territories that grant associate, baccalaureate, or graduate degrees in the disciplines listed in section IV.B. are invited to submit proposals.

### Who May Serve as PI:

For the S-STEM Institutional Capacity Building and Design and Development Type 1 Single Institution projects, the Principal Investigator must be a faculty member currently teaching in one of the S-STEM disciplines listed in section IV.B. who can provide the leadership required to ensure the success of the project. Projects involving more than one department within an institution are eligible, but a single Principal Investigator must accept overall management responsibility. Other members of the S-STEM project management team may be listed as Co-Principal Investigators.

For Design and Development Type 2 Multi-institutional Consortia projects, the Principal Investigator must be a faculty member currently teaching in one of the S-STEM disciplines listed in section IV.B. or an educational or social science researcher who can provide the leadership required to ensure the success of the project. A

consortium project must have a Principal Investigator who accepts overall management responsibility. Other members of the S-STEM project management team may be listed as Co-Principal Investigators or PIs on collaborative research proposals.

#### **Limit on Number of Proposals per Organization:**

An Institution may submit one proposal (either as a single institution or as a member of a multi-institutional Design and Development consortium) from each constituent school or college that awards degrees in an eligible field. See Additional Eligibility Information below for more details.

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

There are no restrictions or limits.

## **Proposal Preparation and Submission Instructions**

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### **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](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](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):

September 22, 2015

May 16, 2016

## **Proposal Review Information Criteria**

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**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**

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**Award Conditions:** Standard NSF award conditions apply.

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

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# I. INTRODUCTION

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The National Science Foundation (NSF) Scholarships in Science, Technology, Engineering, and Mathematics program (S-STEM) addresses the need for a high quality STEM workforce in areas of national priorities. The program seeks to increase the success of low income academically talented students with demonstrated financial need who are pursuing associate, baccalaureate, or graduate degrees in science, technology, engineering, and mathematics (STEM). The program provides awards to Institutions of Higher Education (IHEs) to fund scholarships, and to enhance and test effective curricular and co-curricular activities (e.g., high quality extant curriculum, professional, and workforce development activities) that support recruitment, retention, student success, and graduation in STEM.

The program addresses the challenges facing low-income students by providing a wide range of IHEs with funds to support scholarships to academically talented low-income students from the diverse student population seeking degrees in STEM. Funds also are to enable IHEs in establishing a coherent ecosystem of effective practices and to investigate the effects of those practices on degree attainment in STEM and entry into the STEM workforce or graduate studies. In the context of the S-STEM program, those types of efforts focus on the challenges facing low-income students and must make up a coherent ecosystem of student supports.

The S-STEM program encourages collaborations among different types of partners: Partnerships among different types of institutions, collaborations of STEM faculty and educational and social science researchers, or partnerships among institutions of higher education and business and industry. The program seeks: 1) to increase the number of low-income academically talented students with demonstrated financial need obtaining degrees in STEM and entering the STEM workforce or graduate study; 2) improve the education of future scientists, engineers, and technicians with a focus on academically talented low-income students; and 3) advance understanding of the factors or curricular and co-curricular activities (e.g., high quality extant curriculum, professional and workforce development activities) affecting student success. The National Science Foundation (NSF) established the S-STEM program in accordance with the American Competitiveness and Workforce Improvement Act of 1998 (P.L. 105-227) as modified by P.L. 106-313 in 2000, and P.L. 108-447 in 2004.

Potential S-STEM proposers are strongly encouraged to identify and adapt extant high-quality curricular materials, e.g. those created and developed by projects supported through the Improving Undergraduate STEM Education (IUSE: EHR) program. Principal Investigators (PIs) seeking to develop new resources should submit proposals to the IUSE: EHR program. Likewise, PIs looking to conduct foundational research on academic and/or workforce/career pathways, or the impact of financial aid on student outcomes, should submit proposals to the EHR Core Research (ECR) Program.

# II. PROGRAM DESCRIPTION

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## A. Overview

The S-STEM program provides Institutions of Higher Education (IHEs) with funds for student scholarships to encourage and enable low income academically talented students with demonstrated financial need to enter the workforce or graduate study following completion of associate, baccalaureate, or graduate degrees in STEM. Recognizing that scholarships alone cannot address low retention and graduation rates in STEM, the program also supports the implementation and testing of effective curricular and co-curricular activities (e.g., curriculum, professional, and workforce development activities) featuring: i) close involvement of faculty, ii) student mentoring, iii) provisions of academic and student support, iv) adaptation of evidence-based practices, and v) recognition of S-STEM Scholars. Successful projects include involvement of the Offices of Financial Aid, Student Services, and Offices of Institutional Research.

Proposers are strongly encouraged, but not required, to implement and adapt evidence-based practices and student supports that have been developed and/or promoted by NSF awardees and to utilize research on undergraduate or graduate STEM education conducted by NSF-supported educational, social science, or discipline-based educational researchers. Proposals with a strong focus on workforce development are encouraged to partner with business, industry, and local community organizations. Proposals with a strong focus on the transfer of students from one educational level to another are encouraged to collaborate with appropriate institutional partners (for, example proposals supporting and investigating the transfer of students from 2-year institutions to 4-year institutions should include 2-year institutions and 4-year institutions or universities).

Proposals must include a literature review that establishes the basis for the proposed projects and should be informed by the [Common Guidelines for Education Research and Development](#).

## B. Program Goals

The goals of the S-STEM program are:

1. To increase the recruitment, retention, student success, and graduation (including student transfer) of low-income academically talented students with demonstrated financial need who are pursuing associate, baccalaureate, graduate degrees in STEM and enter the STEM workforce or graduate study.
2. To implement and study models, effective practices, and/or strategies that contribute to understanding the factors of supportive curricular and co-curricular activities that affect recruitment, retention, student success, academic/career pathways, and/or degree attainment (including student transfer) in STEM of low-income academically talented students with

demonstrated financial need.

3. To contribute to the implementation and sustainability of effective curricular and co-curricular activities (e.g., curriculum, professional, and workforce development activities) for low-income academically talented students with demonstrated financial need, pursuing undergraduate or graduate STEM education.

IHEs are expected to establish selection criteria for scholarships. To receive scholarships, students must demonstrate academic talent and financial need. They must be U.S. citizens, permanent residents, nationals, or refugees. See Section IV.C. Scholarship Recipients for additional details.

IHEs are expected to develop and maintain student cohorts and provide S-STEM Scholars with S-STEM faculty mentors. It is expected that scholarship recipients will achieve at least one of the following by the end of the scholarship award period:

- Receive an associate, baccalaureate, or graduate degree in one of the STEM disciplines supported by the S-STEM program;
- Transfer from an associate degree program to a baccalaureate degree program or from an undergraduate program to a graduate program in one of the STEM disciplines supported by the S-STEM program; or
- Successfully overcome one or more of an institution's self-identified attrition points which have been described in the institution's proposal.

### C. Program Strands

*Strand 1: S-STEM Institutional Capacity Building* seeks to increase the participation of institutions that have limited experience with designing and conducting activities, as described in the description of the S-STEM Design and Development projects. Strand 1 provides funds to establish new collaborative partnerships and infrastructure that support these types of projects to (1) provide scholarships, (2) enhance the implementation and understanding of evidence-based academic and student support activities for NSF S-STEM Scholars and other academically talented low-income students pursuing STEM degrees, (3) increase retention, student success and graduation in STEM, and (4) develop and test strategies for systematically exploring student academic and career pathways in STEM in ways that are congruent with the context of the institution.

Proposers are encouraged to work with offices of institutional research or responsible parties or to contact researchers whose interests are in understanding undergraduate/graduate STEM education or workforce development. Findings from these types of projects shall be used to improve local implementation of academic and student supports, provide an understanding of student success (e.g., effects of project activities on student outcomes), and inform any future proposals for S-STEM Design and Development Strand.

The program encourages projects to consider utilizing data analytics to examine patterns in institutional student data that describe and predict the successful completion of student academic and career paths.

This type of project should be led by a team of STEM faculty who are currently teaching in S-STEM disciplines, STEM administrators, and a third member who may be an institutional, educational, discipline-based educational, or social science researcher. The Principal Investigator must be a faculty member currently teaching in a S-STEM discipline.

Proposals in this Strand may request up to \$650,000 for 5 years. At least 60% of total amount requested must be requested for scholarships. Funds should be requested to support high quality extant curriculum development and professional and workforce development activities, such as the implementation and investigation of evidence-based academic and student support activities to determine their effectiveness in recruiting, retaining, and graduating students in STEM. In addition, these funds must support project evaluation and management.

*For awards with a duration of 5 years, a Third-Year Review is required.*

*Strand 2: S-STEM Design and Development* seeks to leverage S-STEM funds with institutional efforts and infrastructure to increase and understand recruitment, retention, student success, and degree attainment in STEM, with emphasis on low-income academically talented students with demonstrated financial need. Strand 2 projects are expected to:

- establish scholarship programs that also provide strong academic and student support (e.g., high quality extant curriculum, professional, and workforce development activities) to increase student success and degree attainment (including student transfer, if appropriate);
- increase retention, student success and graduation in STEM and the quality of the STEM workforce;
- have strong STEM faculty commitment and involvement;
- implement or adapt and study effective high quality extant curricular and co-curricular activities and professional development that are tailored to students, STEM faculty, and different types of institutional contexts;
- focus on cognitive or non-cognitive aspects of student experiences and success (such as research experiences, internships, participation in student cohorts, the mentor/mentee relationship); and
- increase implementation and understanding of high quality extant evidence-based practices and strategies on student outcomes.

As with Strand 1, the program encourages projects to consider utilizing data analytics to examine patterns in institutional student data that describe and predict the successful completion of student academic and career pathways.

Within this Strand there are two types of projects possible.

#### **Design and Development, Type 1: Single Institution**

These types of projects encourage efforts that are focused on well-documented institutional needs or concerns. The program strongly encourages proposals to build on completed needs analyses or institutional scans. They are managed by project teams composed of a faculty member currently teaching in one of the S-STEM disciplines and a STEM administrator at a single institution. The third member of the team is an institutional, educational, discipline-based educational, or social science researcher at the institution or from another institution or research organization. In Single Institution projects the PI must be a faculty member currently teaching in one of the S-STEM disciplines.

Proposals of this type with a focus on projects from single institutions may request up to \$1.0 million for 5 years. At least 60% of the total amount requested must be requested for scholarships. Funds should be requested to support high quality extant curriculum development and professional and workforce development activities, such as the implementation and investigation of evidence-based academic and student support activities to determine their effectiveness in recruiting, retaining, and graduating low-income students in STEM. In addition, these funds must support project evaluation and project management.

Proposals may also include a focus on student transfer or articulation.

*For awards with a duration of 5 years, a Third Year Review is required.*

#### **Design and Development, Type 2: Multi-Institutional Consortia**

These types of projects encourage consortia of different types of institutions such as collaborations between community colleges and four-year colleges or universities or a consortium of institutions that are (a) built around a common interest in one or more high quality extant evidence-based educational practice(s) and/or student support(s) or (b) have a common interest in student transfer and/or articulation. These types of projects are managed by project teams composed of faculty members who are currently teaching in an S-STEM discipline(s), STEM administrators, and educational, discipline-based educational, or social science researchers. In addition to the expectations listed above for all projects in *Strand 2: S-STEM Design and Development*, Multi-Institutional Consortia projects are expected to:

- adapt, implement, examine, or validate models, effective practices, strategies, or factors common to the institutions involved in the consortium that affect recruitment, retention, student success, learning, degree attainment, and/or entry into the STEM workforce, and
- establish strong technical assistance infrastructure and processes to support and manage project activities common across institutions involved in the effort.

In multi-institutional projects the PI must be either a faculty member currently teaching in one of the S-STEM disciplines or an institutional, educational, discipline-based educational, or social science researcher.

Proposals of this type with a focus on multi-institutional efforts may request up to \$5.0 million for 5 years. At least 60% of the total requested amount must support scholarships to academically talented low-income students. Funds must be requested for expenses related to supporting the implementation and testing of a common set of curricular and co-curricular activities or factors, project evaluation, and project management. The level of funding requested should be based on the focus, scope, and size of the effort.

*For awards with a duration of 5 years, a Third Year Review is required.*

**Conferences and Workshops:** In addition to the Strands above the S-STEM program also supports a small number of conferences, workshops, and special projects that lead to a better understanding of issues in the recruitment, retention, student success, degree attainment, and entry into the STEM workforce by low-income students. Budgets for conferences and workshops are expected to be consistent with the duration of the event and the number of participants, but the cost will normally not exceed a total of \$250,000 per event. It is expected that the conferences and workshops will be outcomes-based, and that the final report should contain a statement of the impacts of the event 12-18 months after completion of the event(s). Proposals for conferences and workshops may be submitted at any time during the year, but the proposers should plan on at least 10 months lead time to allow for review and processing of the proposal. A prospective PI is encouraged to contact an S-STEM program officer to discuss the conference or workshop prior to submitting a proposal.

Please refer below to Section V.A.5. for details about the components of a proposal's project description.

#### **D. Resources**

The following sources may be of interest to proposers of S-STEM projects. They represent some of the literature on the effectiveness of scholarships/financial aid, evidence-based educational practices, student supports for degree attainment, and entry into the STEM workforce. The list is not meant to be a complete bibliography.

American Evaluation Association. (2004). *Guiding Principles for Evaluators*. Fairhaven, MA: American Evaluation Association.

Bailey, T.R., Jaggars, S.S., & Jenkins, D. (2015). *Redesigning America's community colleges: A clearer path to student success*. Cambridge, MA: Harvard University Press.

Bickman, L. & Rog, D.J. (Eds.) (1998). *Handbook of applied social research methods*. Thousand Oaks, CA.: Sage Publications, Inc.

Bowen, W.G., Chingos, M.M., & McPherson, M.S. (2009). *Crossing the finish line: Completing college at America's public universities*. Princeton, N.J.: Princeton University Press.

Chen, X. (2013). *STEM Attrition: College Students' Paths Into and Out of STEM Fields* (NCES 2014-001). Washington DC: National Center for Education Statistics, Institute of Education Sciences U.S. Department of Education.

College Board. (2008). *The Effectiveness of Financial Aid Policies: What the Research Tells Us*. Sandy Baum, Michael McPherson, and Patricia Steele, Editors. The College Board. New York: New York.

Coryn, C.L.S. & Scriven, M. (Eds.). (2008). *New Directions for Evaluation: Reforming the Evaluation of Research*, Number 118, Summer 2008. San Francisco: A Wiley Company.

Cresswell, J.W. & Plano Clark, V.L. (2011). *Designing and conducting mixed methods research*. (2nd Ed.). Thousand Oaks, CA.: Sage Publications, Inc.

Executive Office of the President. (January 2014). *Increasing college opportunity for low-income students: Promising models and a call to action*. Retrieved from [http://www.whitehouse.gov/sites/default/files/docs/white\\_house\\_report\\_on\\_increasing\\_college\\_opportunity\\_for\\_low-income\\_students\\_1-16-2014\\_final.pdf](http://www.whitehouse.gov/sites/default/files/docs/white_house_report_on_increasing_college_opportunity_for_low-income_students_1-16-2014_final.pdf)

Fishman, B., Cheng, B. & Penuel, W. (n.d.) *Design Based Implementation Research*. CyberLearning. (<http://circlcenter.org/dbir> retrieved 2/19/2015).

Kazis, R., Vargas, J., & Hoffman, N. (Eds.) (2004). *Double the numbers: Increasing postsecondary credentials for underrepresented youth*. Cambridge, MA: Harvard Education Press.

Kober, N. (2015). *Reaching Students: What the Research Says About Effective Instruction in Undergraduate Science and Engineering*. Board on Science Education, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.

Kuh, G.D., Kinzie, J., Schuh, J. H., Whitt, E.J. & Associates. (2005). *Student success in college: Creating conditions that matter*. San Francisco, CA.: Jossey-Bass.

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Miles, M.B. & Huberman, A.M. (1994). An expanded sourcebook: Qualitative data analysis. (2nd Ed.). Thousand Oaks: CA.: Sage Publications.

National Research Council. (2002). Scientific Research in Education. Committee on Scientific Principles for Education Research. Shavelson, R.J., and Towne, L., Editors. Center for Education. Division of Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.

National Research Council. (2011). Expanding Underrepresented Minority Participation. Hrabowski, III, Chair. Committee on Underrepresented Groups and the Expansion of the Science and Engineering Workforce Pipeline. Committee on Science, Engineering, and Public Policy, Policy and Global Affairs. Washington, DC: The National Academies Press.

National Research Council. (2011). Promising Practices in Undergraduate Science, Technology, Engineering, and Mathematics Education: Summary of Two Workshops. Natalie Nielsen, Rapporteur, Planning Committee on Evidence on Selected Innovations in Undergraduate STEM Education. Board on Science Education, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.

National Research Council. (2012). Discipline-Based Education Research: Understanding and Improving Learning in Undergraduate Science and Engineering. S.R. Singer, N.R. Nielsen, and H.A. Schweingeruber, Editors. Committee on the Status, Contributions, and Future Directions of Discipline-Based Education Research. Board on Science education, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.

National Research Council and National Academy of Engineering. (2012). Community Colleges in the Evolving STEM Education Landscape: Summary of a Summit. S. Olson and J.B. Labov, Rapporteurs. Planning Committee on Evolving Relationships and Dynamics Between Two- and Four-Year Colleges, and Universities. Board on higher Education and Workforce, Division on Policy and Global Affairs. Board on Life Science, Division on Earth and Life Studies, Board on Science Education, Teacher Advisory Council, Division of Behavioral and Social Sciences and Education. Engineering Education Program Office, National Academy of Engineering. Washington DC: The National Academies Press.

National Research Council and National Academy of Engineering. (2013). Educating Engineers: Preparing 21st Century Leaders in the Context of New modes of Learning; Summary of a Forum. Prepared by Steve Olson. Washington DC: The National Academies Press.

National Research Council (2014). Furthering America's Research Enterprise. R.F. Celeste, A. Griswold, and M.L. Straf. (Eds.), Committee on Assessing the Value of Research in Advancing National Goals. Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.

National Science Foundation, Division of Science Resources Statistics. (2011). Women, Minorities, and Persons with Disabilities in Science and Engineering: 2011 (NSF 11-309). Arlington, VA. Available at <http://www.nsf.gov/statistics/wmpd>.

Pascarella, E.T., Terenzini, P.T. (1991). How college affects students: Findings and insights from twenty years of research. (Vol. 1 & 2). San Francisco, CA.: Jossey-Bass.

President's Council of Advisors on Science and Technology, Executive Office of the President. (February 2013). Engage to excel: Producing one million additional college graduates with degrees in science, technology, engineering and mathematics. Retrieved from [http://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast-engage-to-excel-final\\_feb.pdf](http://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast-engage-to-excel-final_feb.pdf)

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Shadish, W.R., Cook, T.D., & Campbell, D.T. (2002). Experimental and quasi-experimental designs for generalized causal inference. Boston: Houghton Mifflin Company.

Tinto, V. (2012). Completing college: Rethinking institutional action. Chicago: The University of Chicago Press.

Tinto, V. (1993). Leaving college: Rethinking the causes and cures of student attrition. (2nd edition). Chicago: The University of Chicago Press.

Yarbrough, D.B., Shulha, L.M., Hopson, R.K., & Caruthers, F.A. (2011). Joint Committee on Standards for Educational Evaluation, The Program Evaluation Standards – A Guide for Evaluators and Evaluation Users. (3rd Ed). Thousand Oaks, CA: SAGE Publications, Inc.

Zemsky, R. (2009). Making Reform Work: The Case for Transforming American Higher Education. New Brunswick: Rutgers University Press.

### III. AWARD INFORMATION

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The number and size of awards will vary depending upon the scope of projects and availability of funds. Approximately \$50 - \$70 million is expected to be available annually, for new and continuing activities to support approximately 60 - 80 new S-STEM Awards.

Awards to support Institutional Capacity Building projects should not exceed \$650,000 for 5 years. Awards to support Design and Development Type 1 Single Institution projects should not exceed \$1.0 million for 5 years. Awards to support Design and Development Type 2 Multi-Institutional Consortia projects should not exceed \$5.0 million for 5 years. The level of funding requested should be based on the focus, scope, and size of the effort.



## IV. ELIGIBILITY INFORMATION

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### Who May Submit Proposals:

Proposals may only be submitted by the following:

- Institutions of higher education (as defined in section 101 (a) of the Higher Education Act of 1965) in the United States and its territories that grant associate, baccalaureate, or graduate degrees in the disciplines listed in section IV.B. are invited to submit proposals.

### Who May Serve as PI:

For the S-STEM Institutional Capacity Building and Design and Development Type 1 Single Institution projects, the Principal Investigator must be a faculty member currently teaching in one of the S-STEM disciplines listed in section IV.B. who can provide the leadership required to ensure the success of the project. Projects involving more than one department within an institution are eligible, but a single Principal Investigator must accept overall management responsibility. Other members of the S-STEM project management team may be listed as Co-Principal Investigators.

For Design and Development Type 2 Multi-institutional Consortia projects, the Principal Investigator must be a faculty member currently teaching in one of the S-STEM disciplines listed in section IV.B. or an educational or social science researcher who can provide the leadership required to ensure the success of the project. A consortium project must have a Principal Investigator who accepts overall management responsibility. Other members of the S-STEM project management team may be listed as Co-Principal Investigators or PIs on collaborative research proposals.

### Limit on Number of Proposals per Organization:

An Institution may submit one proposal (either as a single institution or as a member of a multi-institutional Design and Development consortium) from each constituent school or college that awards degrees in an eligible field. See Additional Eligibility Information below for more details.

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

There are no restrictions or limits.

### Additional Eligibility Info:

#### A. Institutions

1. An institution may submit one proposal from each constituent college or school that awards eligible degrees. (For example, a university with a College of Engineering, a School of Life Sciences, and a College of Arts and Sciences could submit one proposal from each for a total of three. However, within a College of Engineering, if the Department of Electrical Engineering were submitting a proposal, a proposal from the Department of Mechanical Engineering could be submitted only in a subsequent year. The two departments could also submit a proposal jointly.)
2. An institution without constituent schools (for example, a 4-year college or a community college) may submit one proposal each year.
3. An institution that is part of a larger system is considered separate for this purpose if it is geographically separate and has its own chief academic officer.

#### B. Scholarship Recipients

Criteria for eligibility for the NSF S-STEM supported scholarships will be established by the institution(s). S-STEM scholarship recipients will be selected by the awardee institution(s), but must

- be citizens of the United States, nationals of the United States (as defined in section 101(a) of the Immigration and Nationality Act), aliens admitted as refugees under section 207 of the Immigration and Nationality Act, or aliens lawfully admitted to the United States for permanent residence;
- be enrolled full time in a program leading to an associate, baccalaureate, or graduate degree in one of the following disciplines for each term for which a student receives a scholarship:
  - biological sciences (except medicine and other clinical fields);
  - physical sciences, including physics, chemistry, astronomy, and materials science;
  - mathematical sciences;
  - computer and information sciences;
  - geosciences;
  - engineering; or
  - technology areas associated with the preceding fields (for example, biotechnology, chemical technology, engineering technology, information technology, etc.);
- demonstrate academic ability or potential;
- demonstrate financial need, defined for undergraduate students by the US Department of Education rules for need-based Federal financial aid Free Application for Federal Student Aid (FAFSA), or, for graduate students, defined as financial eligibility for Graduate Assistance in Areas of National Need (GAANN).

These rules define financial need for undergraduates as the Cost of Attendance (COA) for an institution minus the Estimated Family Contribution (EFC) for the student (see [http://studentaid.ed.gov/students/publications/student\\_guide/index.html](http://studentaid.ed.gov/students/publications/student_guide/index.html)). The COA, determined by each educational institution, is the total amount it will cost a student to go to school, including tuition and fees; on-campus room and board (or a housing and food allowance for off-campus students); allowances for books, supplies, transportation, loan fees, dependent care, and costs related to a disability; and miscellaneous expenses. The EFC is determined by the FAFSA form and represents the expected family contribution toward the COA (<http://www.fafsa.ed.gov>). It is recommended that the PI consult the campus financial aid office for more information regarding the institutional COA and the calculation of student financial need.



## V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

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### A. Proposal Preparation Instructions

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**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](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](mailto: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](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](mailto: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.5 of the Grant Proposal Guide provides additional information on collaborative proposals.

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 following instructions supplement the guidelines in the GPG and NSF Grants.gov Application Guide.

#### Full Proposal Content

##### 1. Cover Sheet

While filling out the cover sheet in FastLane, it is important to choose the program solicitation number indicated on the cover of this document ("NSF Scholarships in Science, Technology, Engineering, and Mathematics") from the list of programs in the "NSF Unit Consideration" section. This choice must be specified in order to have FastLane access the DUE Project Data Form, which is required for S-STEM proposals.

An informative title for the proposed S-STEM project must be provided on the appropriate line. Please use the full project title and refrain from using the S-STEM name or acronym, NSF, or your institution's name in the project title.

##### 2. Project Data Form

A DUE Project Data Form (NSF Form 1295: Project Data Form) must be completed for all proposals. The information on this form is used to direct proposals to appropriate reviewers and to determine the characteristics of projects supported by DUE. In FastLane, this form will appear in the list of forms for the proposal only after you have selected the appropriate Program Solicitation number (indicated on the cover of this document) on the proposal cover sheet and have saved the cover sheet.

##### 3. Project Summary

The Project Summary is a one page description of the proposed project that consists of an overview, a statement on Intellectual Merit, and a statement on Broader Impacts. In the overview, provide a brief description of the S-STEM project including the number of scholarships to be provided, the discipline areas to be served by the scholarship funds, the objectives of the project, the expected retention or transfer and graduation rates, and basic information about the student recruitment, selection, support, and career placement services to be provided as part of this S-STEM project.

The project summary **MUST** explicitly address both Intellectual Merit and Broader Impacts in separate statements. See Section VI. A., Proposal Review Process, for a description of the two criteria. NSF will return without review proposals that do not address both criteria in the Project Summary.

##### 4. Table of Contents

The Table of Contents is system-generated and cannot be edited.

##### 5. Project Description

The Project Description must conform to GPG formatting requirements and must not exceed 15 single-spaced pages. For legibility, 12-point type and page numbers are preferred. Proposals that exceed the page limit will be returned without review. The Project Description should contain the following information:

###### a. Results from Prior NSF Support

Report on the results from related prior NSF support (see Chapter II.C.2.d(iii) of the GPG). If there has been any prior S-STEM, CSEMS, or Science, Technology, Engineering, and Mathematics Expansion Program (STEP) awards, provide quantitative and qualitative information about them, such as project outcomes, and describe the relationship of this proposed project to the other S-

STEM, CSEMS or STEP awards. Required information is listed below.

Results from prior S-STEM and CSEMS awards, at least, must include: Award number(s); amount of the scholarship; number of scholarship recipients; number of recipients transferring from 2-year institutions to 4-year programs (if appropriate); number of recipients graduating; percentage of recipients graduating; and number of recipients leaving the program.

Results from prior STEP awards, at least, must include: Award number(s); amount of the award(s); number of students who participated in project activities; description of the activities; retention and graduation rates in STEM programs participating in the STEP project at baseline; expected increase in the number of students graduating with degrees in targeted STEM programs; and actual increase in the number of students graduating with a degree in targeted STEM programs.

For S-STEM projects that are on-going, the following information must be reported: Award number(s); amount of the scholarship; number of scholarship recipients; number of recipients transferring from 2-year institutions to 4-year programs (if appropriate); number of recipients retained or graduating in STEM; and number of recipients leaving the program.

For on-going STEP programs, the following information must be reported: Award number; amount of the award; number of students who are participating in project activities; description of the activities; retention and graduation rates in STEM programs participating in the project at baseline; expected increase in number of students graduating with a degree in targeted STEM programs; and current retention rate of students participating in STEP activities.

Descriptions of the results from prior S-STEM, CSEMS, and/or STEP support must discuss (a) lessons learned from the implementation of project activities and outcomes of the project(s) and (b) how these lessons influenced the proposed project.

#### **b. Project Objectives and Plans**

The project should have specific objectives that reflect the goals of the S-STEM program and local needs, as well as specific plans to select students, encourage them to achieve their best academic performance, and enable them to enter the workforce or continue studies in their fields. The project also should have specific plans to implement and investigate high quality extant curriculum, professional and workforce development activities (e.g., academic and student support activities).

#### **c. Significance of Project and Rationale**

The proposal should address how the goals of the S-STEM program will be met. (See Program Description, Section II). In addition, if appropriate, it should include information on the demographics of the departments or programs affected by the scholarships, including number of majors and number of graduates per year, as well as information on overall enrollment and retention within the institution and programs involved. A rationale for the number of scholarships and the scholarship amount requested should also be provided. Specifically, baseline data from Institutional Research Offices should include: Current student demographics and enrollment from institutions awarding scholarships; current student demographics and enrollment for each S-STEM discipline that is included in the proposed project; current 1-year retention rates for each S-STEM discipline that is included in the proposal; and current graduation rates for each S-STEM discipline that is included in the proposal. Expected outcomes should include: Expected demographics and enrollment for the S-STEM disciplines that are included in the proposal; expected 1-year retention or transfer rates for S-STEM disciplines that are included in the proposal; and expected graduation rates for each of the S-STEM disciplines included in the proposal. See II.B. for a list of program outcomes.

#### **d. Activities on Which the Current Project Builds**

S-STEM projects should build on the existing academic and student supports and program elements. Proposals should discuss such academic and student supports and program elements that are relevant to the S-STEM project and describe ways in which the S-STEM project will use or enhance the structures. Proposals should describe and justify the adaptation of academic and students supports and program elements implemented for S-STEM Scholars and other low-income students. If the institution or a member of a consortium of institutions has had a previous S-STEM, CSEMS, and/or STEP award, show how the proposed project will build on lessons learned from these efforts.

If appropriate, S-STEM projects should draw on the research literature and discuss the issues or gaps in the literature that the project plans to address.

#### **e. S-STEM Project Management Plan**

S-STEM projects must be guided by a management plan in which the key personnel and project logistics are defined. The roles and responsibilities of the personnel involved should be clear.

For all projects the project leadership team must include a faculty member currently teaching in a S-STEM discipline as listed in section IV.B, a STEM administrator, and an educational, discipline-based educational, or social science researcher.

The project must involve S-STEM faculty, as mentors, in addition to the PI, and it is strongly encouraged that the project involve staff from offices of institutional research, student services, financial aid, and/or admissions. These additional personnel may be included as Co-PIs, depending on institutional policy. In any case, the proposal must describe specific roles of each person in the project. The PI will have overall responsibility for administering the project and for interacting with NSF.

Plans must be described for activities such as recruitment, selection, and retention of students; studies to determine the effectiveness of project activities; maintenance of S-STEM records; coordination of data collection, analysis, and reporting responsibilities; oversight of student supports; and implementation of a process by which students who lose S-STEM eligibility will be replaced by new students.

See Section V.A.8 below for further details on Budget, Budget Justification, and Allowable Costs.

#### **f. Student Selection Process and Criteria**

The program requires that the students meet the requirements for citizenship, major, academic potential, and need that are outlined in Section IV.B, Additional Eligibility Information, Scholarship Recipients. Projects should have additional selection criteria that reflect the local program. S-STEM scholars must be able to demonstrate their eligibility in each semester or quarter of S-STEM support.

The selection process for scholarship recipients must include indicators of academic merit and other indicators of likely professional success. Multiple indicators may be appropriate in gauging both academic merit (e.g., grade point average, placement test results) and professionalism (e.g., motivation, ability to manage time and resources, communication skills). Selection criteria must be flexible enough to accommodate applicants who come from diverse backgrounds and with diverse career goals. The program encourages projects to seek applications from members of underrepresented groups in STEM (e.g., race, ethnicity, gender, geographic areas,

first generation, etc.), with the broad aim of supporting low-income academically talented students with demonstrated financial need to obtain degrees and enter into the STEM workforce or graduate studies.

The proposal should indicate how students' eligibility will be determined, the mechanisms by which scholarships for students will be provided, and how scholarship program outcomes will be evaluated and disseminated. It should also identify criteria for retention of students' scholarships from one year to the next.

#### **g. S-STEM Student Support Services and Programs**

It is expected that awardee institutions will have or will adapt high quality extant curricular and co-curricular activities (e.g., curriculum, professional, and workforce development activities) designed to enhance student learning, academic performance, retention to graduation, and career or higher education placement. Awardee institutions will implement and test these practices to understand if they are working as expected, how they are working, and for what types of students.

All S-STEM scholarship recipients are required to have S-STEM faculty mentors and belong to student cohorts. Other examples of student supports include:

- recruitment of students to higher education programs and careers in the S-STEM disciplines;
- curricular activities such as the inclusion of active learning in gateway courses;
- support and mentoring of students by peers and other professionals;
- academic support services such as tutoring, study-groups, or supplemental instruction programs;
- industry experiences, internship opportunities, and research opportunities;
- community building and support among S-STEM scholars within the institution;
- participation in local or regional professional, industrial or scientific meetings and conferences; and
- career counseling and job placement services for S-STEM scholars.

For support services and programs that already exist, describe how they will be adapted to meet the specific objectives of the S-STEM project. Partnerships with industry are encouraged.

See Section V.A.8, Proposal Preparation Instructions, for a discussion of budget details.

#### **h. Quality Educational Programs**

Institutions should provide evidence of the quality of their educational programs, particularly those in the targeted disciplines. Where appropriate, cite external accreditations in the S-STEM disciplines (for example, ABET for engineering).

#### **i. Assessment and Evaluation**

S-STEM projects must have clear and specific plans for assessment and evaluation. This includes not only assessment of student progress but overall evaluation of the S-STEM project, including evaluation of studies designed to determine the effectiveness of project activities. At a minimum, the evaluator must be external to the project, but not necessarily to the institution. S-STEM projects are required to participate in regular NSF-led data collection activities to track the students. Beyond the impact on students, S-STEM projects should have impact on the departments, disciplines involved, and the institution. Contributions to the knowledge base on undergraduate or graduate STEM education is expected. The S-STEM proposal should identify appropriate assessment and evaluation plans for project improvement, as well as plans for programmatic evaluation at the end of the project. Each S-STEM proposal will describe evaluation plans that are clearly aligned with the stated goals of the project. The evaluation design should match the scope of the project and include formative and summative components that are designed to assess processes and outcomes.

#### **j. Dissemination**

The results of successful projects will be of potential interest to other faculty, staff, students, other stakeholders, and the community of which the institution is a part, as well as to student aid professionals and others who operate scholarship programs. The proposal should include a plan to report on the project to appropriate audiences.

#### **k. Advice to Proposers**

There are several considerations related to special features of the S-STEM program that deserve more detailed description.

For Institutional Capacity Building and Design and Development projects, the S-STEM solicitation specifies that a faculty member currently teaching in an S-STEM discipline must serve as the principal investigator for the project. The purpose of this requirement is to ensure that STEM faculty members of disciplines involved in the project are actively involved with the S-STEM Scholars. STEM faculty must be involved, and their roles described, as appropriate (for example, providing S-STEM faculty mentors which is a program requirement). For Design and Development Multi-Institutional Consortia projects, an institutional, educational, discipline-based educational, or social science researcher may be the Principal Investigator, if appropriate. In addition, the program encourages the involvement of specialists from the financial aid office, student services, and/or institutional research office.

Experience indicates that the most successful S-STEM scholarship projects involve a group of students who in some way naturally associate, whether as majors in the same department, or sharing classes, or participating together in activities of common interest. Since students in many disciplines are potentially eligible for S-STEM scholarships, the project design should include plans to attract and maintain a cohort of students who hold scholarships, which is a program requirement.

S-STEM projects must provide student support structures that help the scholarship recipients succeed as students and as working professionals. Ideally, S-STEM Scholars are part of a cohort that is managed and supported as part of an active learning community. This can involve adapting existing support structures. Proposals should describe these support structures and explain, particularly in the case of existing support structures, how the S-STEM Scholars and other students will be involved in the support structure or activity.

S-STEM projects often include enhancements such as seminars, field trips, social activities, student-faculty interaction outside classes, and other enrichment activities. These are valuable parts of programs. Such activities may be required as part of the scholarship program, but the requirements should be structured so that students who have other responsibilities can reasonably participate, and the requirements should be flexible enough to allow reasonable absences.

In addition, some projects may offer research opportunities, tutoring, and internships for scholarship recipients. While these activities can enhance the student experience, they are optional components of the S-STEM project. S-STEM scholarships may not be, nor appear to be, payment for services. Since the scholarship often provides funds that allow a student to concentrate on full-time

studies, opportunities of this kind are valuable components of S-STEM projects as long as they are clearly optional for the student. This limitation on required research does NOT apply for graduate students doing research as part of their thesis or dissertation.

NOTE: This is not an appropriate program for supporting REU Supplements.

Students who receive S-STEM scholarships must be enrolled full-time in a program leading to a degree in one of the S-STEM disciplines. Often there are programs at an institution that do not have exactly the same title as an S-STEM discipline, but might be related to or part of the S-STEM discipline. In cases where students are in programs that are not included in the list of specific S-STEM disciplines, the proposal must clearly document and justify the inclusion of the program in the S-STEM scholarship group. If necessary, S-STEM proposals should address this issue in enough detail so that expert reviewers can see the connection and relevance of the project to the S-STEM disciplines.

Many students may not be eligible for the maximum scholarship of \$10,000 per year, depending on the student's expected family contribution and the amount of the institution's cost of attendance. The proposal budget requires an estimate of both the number of scholarships to be awarded and the total amount of funds that would be required. The proposal should include an explanation of how these estimates were determined. The proposal should include the potential number of students in the proposed cohort (for example, a disciplinary major) and an estimate of the number of these students who might have financial need. It may be helpful to consult with the financial aid office at the institution to determine typical financial need for the proposed cohort of students (or for some larger group of students if information on the smaller cohort is not easily available). While there is flexibility within a project budget after a grant is made, the size of the budget request must be closely related in the proposal to a realistic estimate of student need.

S-STEM scholarships involve full-time academically talented low-income students who demonstrate financial need. NSF has adopted the standard U.S. Department of Education guidelines for determining financial need as well as allowable educational expenses. NSF, however, cannot prescribe the way in which local financial aid offices or departments develop policies or manage their students. Thus, rather than defining a specific number of hours for full-time classification, S-STEM provides that students are full-time if classified as full-time by their local institution. Similarly, NSF cannot dictate financial aid policy to institutions. While we hope that our broad interpretation of allowable educational expenses will be used to calculate need and funding potential, NSF must rely on local financial aid office policies about management of student aid and scholarship funds. Likewise, each institution determines measures of academic promise for its students. Principal investigators developing S-STEM proposals should talk over these issues with appropriate financial aid offices as well as their discipline faculty in developing policies and criteria that are included in the S-STEM proposal.

Proposals are welcome from all eligible institutions. If the institution has received a prior S-STEM (or CSEMS) or STEP (STEM Talent Expansion Program) award, the proposed project must build on the experience from the prior project. Proposal reviewers will want to know quantitative and qualitative outcomes of any current or former project and how the experience has affected plans for the current project. This is especially true when the same or related disciplines are involved, even if there is no overlap in personnel. Proposers may use the NSF web search [<http://go.usa.gov/X5F>], at the bottom of the program webpage select the link "What Has Been Funded (Recent Awards Made Through This Program, with Abstracts)" to search for prior awards in the S-STEM program, by institution name or state. A brief but detailed discussion of any other project and its relation to the proposed project must be included in the project description.

The program requires that awardees determine the effectiveness of S-STEM supported activities for recruitment, retention (including transfer), and graduation in STEM.

## **I. Project Description Content Checklist**

In summary, the proposal should clearly describe the plan for implementing a program with the goals and characteristics outlined in the preceding text. The proposal should include, within the project description (limited to 15 single-spaced pages), the following:

- Results from prior NSF support, with particular emphasis on any prior S-STEM, CSEMS, or STEP awards;
- Statement of the project objectives and plans;
- Discussion of the project's significance, including demographic information and rationale for the number of scholarships and the scholarship amount requested;
- Discussion of activities on which the project builds (particularly connections to any existing S-STEM, CSEMS, or STEP awards at the institution);
- Description of the management plan, including discussion of the role of faculty in the disciplines in the operation of the project;
- Outline of the student selection process and criteria;
- Description of the implementation and testing of curricular and co-curricular activities, student support services and programs, and their impact on students;
- Evidence of the quality of the institution's educational programs;
- Plans for project assessment and evaluation; and
- Plans for dissemination.

## **6. References Cited**

These should be both discipline-based and based in the literature on STEM teaching and learning.

## **7. Biographical Sketches**

Include a 2-page biographical sketch (following the instructions in the GPG) for the Principal Investigator and each listed Co-Principal Investigator and/or Senior Personnel.

## **8. Budget, Budget Justification, and Allowable Costs**

Provide a budget for each year of support requested.

The maximum duration for a Strand 1 project is expected to be 5 years. The maximum S-STEM request may not exceed \$650,000. At least 60% of the total requested amount must go to scholarships to academically talented low-income students with demonstrated financial need. Funds must support the implementation and testing of high quality extant curricular and co-curricular activities, contributions to knowledge use and generation, project evaluation, and project management.

The maximum duration for a Strand 2 for Design and Development – Type 1 Single Institution project is expected to be 5 years. The maximum S-STEM request may not exceed \$1.0 million. At least 60% of the total amount requested must go to scholarships to academically talented low-income students with demonstrated financial need. Funds must support the implementation and testing of

high quality extant curricular and co-curricular activities or student support activities, contributions ;to knowledge use and generation, project evaluation, and project management.

The maximum duration for a Strand 2 for Design and Development - Type 2 Multi-Institutional Consortia project is expected to be 5 years. The maximum S-STEM request may not exceed \$5.0 million and is dependent on focus, size, and scope. At least 60% of the total requested amount must go to supporting scholarships for academically talented low-income students with demonstrated financial need. Funds must support the implementation and testing of high quality extant curricular and co-curricular activities common to all members of the consortium, contributions to knowledge use and generation, project evaluation, and project management.

The following instructions refer to the NSF proposal budget form, a sample of which is available at <http://www.nsf.gov/pubs/1999/99form1030/99form1030.pdf>. The sections and budget line designations correspond to the FastLane budget screen.

- All allocations for scholarships should be indicated in NSF budget form section F, "Participant Support," line F1 - "Stipends" of the FastLane budget form. Scholarships may be requested for up to \$10,000 per student per year. Because many students may not be eligible for the maximum scholarship amount of \$10,000, the proposal should explain how the number of scholarships requested and the total amount of scholarship funds requested were determined.
- Faculty salary requests must be accompanied by an appropriate indication of the fraction of academic or summer months to be paid by the grant. If no salary is requested from the grant, then the fraction of NSF-funded academic and summer months should be listed on the budget form as zero.
- For Strands 1 and Strand 2 Type 1 Single Institution, funds must be requested for expenses related to supporting the implementation and testing of high quality extant curricular and co-curricular activities, student support, project evaluation, and project management. These costs may include funds associated with personnel required to implement project activities. These direct costs must be assigned to the appropriate NSF budget categories on the NSF budget form and must be explained in the budget justification. Refer to the GPG instructions for appropriate categories. Items that are for direct support of scholar participants (for example, student travel to professional meetings or meeting registrations) should be listed in the "Participant Support" section on lines F.2, "Travel" or F.3, "Subsistence." Other costs should be listed in other sections of the budget as appropriate. Do not enter any costs on line G.6. "Other Direct Costs" - "Other" or F.4. "Participant Support Costs" - "Other."
- Indirect costs (NSF budget form line I) are subject to the institution's current Federally negotiated indirect cost agreement. The total budget request (sum of direct and indirect costs to be entered on budget line J) must not exceed the amount set for each type of project. Prospective PIs should consult with their university Office of Sponsored Programs about the calculation of indirect costs.
- For Strand 2 - Type 2 Multi-Institutional Consortia projects, at least 60% of the total requested amount must go to supporting scholarships for academically talented low-income students with demonstrated financial need. Funds must be requested for expenses related to the implementation and testing of high quality extant curricular and co-curricular activities or factors common to all members of the consortium, student support activities, contributions to knowledge use and generation, project evaluation, and project management. Indirect costs (NSF budget form line I) are subject to the institutions' current federally-negotiated indirect cost agreement. The total of all direct and indirect costs for the Multi-Institutional consortia projects are capped at \$5.0 million.
- Funds should also be included for the PI or another member of the leadership team to attend meetings of grantees and other researchers that may be organized by community stakeholders such as professional societies or other scholarly interest groups.

**9. Current and Pending Support** Provide a list of Current and Pending Support for the Principal Investigator and each Co-Principal Investigator. All investigators should list the S-STEM proposal as a pending project.

**10. Facilities, Equipment, and Other Resources** See GPG Section II.C.2.i.

**11. Supplementary Documentation** Evidence of the high quality of academic programs or excellence in student recruitment, support, or career placement may be included as supplementary documentation. Scanned copies of letters of institutional support and letters documenting partnership commitments (e.g., industry partners for student internships) should also be included as supplementary documentation. Supplementary documentation is limited to 10 pages. Do not send paper copies to NSF.

## B. Budgetary Information

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

**Other Budgetary Limitations:**

No other budgetary limitations. As described above, budgetary details are described in section V.A.8.

## C. Due Dates

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

September 22, 2015

May 16, 2016

## D. FastLane/Grants.gov Requirements

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**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](mailto: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](mailto: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

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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/](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

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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

Reviewers will be asked to consider the above two merit review criteria with emphasis placed on the S-STEM program components (see "Program Description"). Those elements include:

- Previous S-STEM, CSEMS, or STEP awards;
- Student-support infrastructure for the successful graduation of scholarship recipients;
- Management plan that is effective and clearly articulated;
- Evidence of broad faculty participation and support from the appropriate academic, financial aid, and student services personnel;
- Justification of the number and amount of scholarships requested based on current student demographics;
- Details describing methods for documenting, testing, and understanding the implementation and effects of project activities;
- Educational program of high quality; and
- Evaluation design that is aligned with project goals.

## B. Review and Selection Process

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Proposals submitted in response to this program solicitation will be reviewed by 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

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### A. Notification of the Award

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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

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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](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](mailto: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](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag).

### C. Reporting Requirements

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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](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag).

In addition, in response to the need for NSF to report on the operation and success of the S-STEM program, a web-based data collection site has been developed for the purpose of collecting information about program participants.

Each S-STEM PI is required to complete information about each S-STEM scholar and subsequently update the information reported through the web site during each semester of continued S-STEM support. Instructions will be provided shortly after the award to successful grantees. This information must be provided within 30 days of the beginning of each semester or quarter and includes the following information about each S-STEM scholar: name, permanent address, school address, major, career goals, race/ethnicity (student's option to report), disabilities (student's option to report), gender, date of birth, grade point average, participation in an internship (in an S-STEM-related area), and student employment (part-time or full-time; not necessarily in an S-STEM-related area). Any information that would permit identification of individual responses will be held in strict confidence.

Each project with a duration of 5-years will be required to participate in a Third-Year Review that will focus on accomplishments, challenges, changes in the project, and lessons learned. Instructions will be provided shortly after the award to successful grantees.

An external evaluator has been retained to assist in the evaluation process at the NSF program level. This evaluator will use the demographic data and student contact information to conduct formative and summative evaluation of the S-STEM program which includes post-graduation and post-employment assessment. These data are not used to evaluate individual projects.

Projects are required to cooperate and participate in a third-party independent evaluation of the S-STEM program.

## VIII. AGENCY CONTACTS

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*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:

- Connie K. Della-Piana, telephone: (703) 292-5309, email: [cdellapi@nsf.gov](mailto:cdellapi@nsf.gov)
- Paul Tymann, telephone: (703) 292-2260, email: [ptymann@nsf.gov](mailto:ptymann@nsf.gov)
- John Krupczak, telephone: (703) 292-4647, email: [jkrupcza@nsf.gov](mailto:jkrupcza@nsf.gov)

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: [fastlane@nsf.gov](mailto: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](mailto:support@grants.gov).

## IX. OTHER INFORMATION

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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](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 mechanism. Further information on Grants.gov may be obtained at <http://www.grants.gov>.

## ABOUT THE NATIONAL SCIENCE FOUNDATION

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

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

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

*Facilitation Awards for Scientists and Engineers with Disabilities* provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

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

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

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

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

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
- **For General Information** (NSF Information Center): (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**
  - Send an e-mail to: [nsfpubs@nsf.gov](mailto: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

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

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