

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

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## PROGRAM SOLICITATION NSF 21-550

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### REPLACES DOCUMENT(S): NSF 20-526

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National Science Foundation

Directorate for Education and Human Resources  
Division of Undergraduate Education

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

April 07, 2021

Track 1, 2, 3 and Collaborative Planning grants

March 16, 2022

Third Wednesday in March, Annually Thereafter

## IMPORTANT INFORMATION AND REVISION NOTES

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The Scholarships in Science, Technology, Engineering, and Mathematics, S-STEM program solicitation has been revised for the FY 2021 competition, and prospective Principal Investigators are encouraged to read the solicitation carefully. Among the changes are the following:

#### Changes Affecting All Proposals

- The maximum project duration has been extended from 5 to 6 years for Track 1, 2 and 3 proposals.
- The requirements for the project description section for Track 1, 2 and 3 proposals have been further clarified and streamlined.
- All S-STEM proposals must provide information about the size and characteristics of their pool of potential scholarship applicants who meet all the eligibility requirements described in the proposal.
- Funds for additional activities that financially support individual S-STEM Scholars are allowable, including but not limited to internships, research experiences, and conference attendance. These costs are not considered scholarships and cannot be included in the calculation of the percentage of the budget that must be used for scholarships, which continues to be at least 60%.
- A letter describing how low-income status is defined by the institution is now required as a supplemental document. This letter should come from the institution's Financial Aid Office (or equivalent) and should include affirmation that offices will support this scholarship program as described in the proposal.
- Institutions with a current S-STEM award should wait at least until the end of the third year of execution of their current award before submitting a new S-STEM proposal focused on students pursuing the same discipline(s).

#### Changes to and Addition of Specific Program Tracks

- Collaborative Planning grant proposals are now invited (up to \$150,000 for up to 2 years).
- Capacity building proposals (Track 1) are now scholarship-intensive. That is, although Track 1 proposals must generate new knowledge via a robust project evaluation plan and include substantive dissemination plans, they no longer require formal research activities (up to \$750,000 for up to 6 years).
- Single institution proposals (Track 2) are now scholarship-intensive. That is, although Track 2 proposals must generate new knowledge via a robust project evaluation plan and include substantive dissemination plans, they no longer require formal research activities (up to \$1.5 million for up to 6 years).

The S-STEM program team will host webinars after the release of this solicitation. In the webinars, key features and expectations of the S-STEM program will be discussed. Information regarding the webinars will be posted to the S-STEM program webpage: [https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=5257](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5257).

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) (NSF 20-1), which is effective for proposals submitted, or due, on or after June 1, 2020.

## SUMMARY OF PROGRAM REQUIREMENTS

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### General Information

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**Program Title:**

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

**Synopsis of Program:**

The main goal of the S-STEM program is to enable low-income, talented domestic students to pursue successful careers in promising STEM fields. Ultimately, the S-STEM program wants to increase the number of low-income students who graduate and contribute to the American innovation economy with their STEM knowledge. Recognizing that financial aid alone cannot increase retention and graduation in STEM, the program provides awards to Institutions of Higher Education (IHEs) to fund scholarships and to adapt, implement, and study effective evidence-based curricular and co-curricular activities that support recruitment, retention, transfer (if appropriate), student success, academic/career pathways, and graduation in STEM.

The program seeks to 1) increase the number of low-income academically talented students with demonstrated financial need obtaining degrees in S-STEM eligible disciplines and entering the US workforce or graduate programs in STEM; 2) improve support mechanisms for future scientists, engineers, and technicians, with a focus on low-income academically talented students with demonstrated financial need; and 3) advance our understanding of how interventions or evidence-based curricular and co-curricular activities affect the success, retention, transfer, academic/career pathways, and graduation of low-income students in STEM.

The S-STEM program encourages collaborations among different types of participating groups, including but not limited to partnerships among different types of institutions; collaborations of STEM faculty and institutional, educational, and social science researchers; and partnerships among institutions of higher education and business, industry, local community organizations, national labs, or other federal or state government organizations, if appropriate.

Scholars must be domestic low-income, academically talented students with demonstrated unmet financial need who are enrolled in an associate, baccalaureate or graduate degree program in an S-STEM eligible discipline. Proposers must provide an analysis that articulates the population of students they are trying to serve. This analysis must include the predicted number of students who meet all the eligibility requirements at the time of proposal submission as a proxy measure of the pool of students that would qualify in the future if the proposal is awarded. This number may be based on current and/or historical data about students who are currently pursuing degrees in the STEM disciplines targeted by the proposal.

**S-STEM Eligible Degree Programs**

- Associate of Arts, Associate of Science, Associate of Engineering, and Associate of Applied Science
- Bachelor of Arts, Bachelor of Science, Bachelor of Engineering and Bachelor of Applied Science
- Master of Arts, Master of Science and Master of Engineering
- Doctoral

**S-STEM Eligible Disciplines**

- 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
- Technology fields associated with the disciplines above (e.g., biotechnology, chemical technology, engineering technology, information technology)

Note that programs in business schools that lead to Bachelor of Arts or Science in Business Administration degrees (BABA/BSBA) are not eligible for S-STEM funding.

Proposers are strongly encouraged to contact Program Officers before submitting a proposal if they have questions concerning degree eligibility.

The S-STEM program particularly encourages proposals from 2-year institutions, Minority Serving Institutions (MSIs), Historically Black Colleges and Universities (HBCUs), Hispanic Serving Institutions (HSIs), tribal colleges and universities, and urban and rural public institutions.

**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.*

- Alexandra Medina-Borja, Lead, telephone: (703) 292-7557, email: [amedinab@nsf.gov](mailto:amedinab@nsf.gov)
- Michael J. Ferrara, Co-Lead, telephone: (703) 292-2635, email: [mferrara@nsf.gov](mailto:mferrara@nsf.gov)
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**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 70 subject to availability of funds.

**Anticipated Funding Amount:** \$80,000,000 to \$115,000,000

The program supports four types of projects subject to availability of funds:

- Awards for Track 1 (Institutional Capacity Building) projects may not exceed \$750,000.
- Awards for Track 2 (Implementation: Single Institution) projects may not exceed \$1.5 million.
- Awards for Track 3 (Inter-institutional Consortia) projects may not exceed \$5.0 million.
- Collaborative Planning projects may not exceed \$150,000.

## Eligibility Information

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**Who May Submit Proposals:**

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.

**Who May Serve as PI:**

For Track 1 (Institutional Capacity Building) and Track 2 (Implementation: Single Institution) projects, the Principal Investigator must be a faculty member currently teaching in an S-STEM eligible discipline 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 and leadership responsibility. Faculty from all departments involved need to have roles in the project as either Co-Principal investigators or senior personnel. Other members of the S-STEM senior project leadership and management team may be listed as Co-Principal Investigators.

For Track 3 (Inter-institutional Consortia) projects, the Principal Investigator must be a faculty member currently teaching in an S-STEM eligible discipline or an institutional, 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 and leadership responsibility. Faculty from all institutions and departments involved need to have roles in the project as either Co-Principal investigators or senior personnel. Other members of the S-STEM senior project leadership and management team may be listed as Co-Principal Investigators or as Principal Investigators on collaborative research proposals.

Collaborative Planning grants are intended to help a collection of institutions plan for a future Track 3 proposal. For Collaborative Planning grants, the Principal Investigator must be a faculty member teaching in any S-STEM eligible discipline or STEM administrator (e.g., Department Head, Chair, Dean or Associate Dean) at one of the institutions within the envisioned inter-institutional consortia, who can provide the required leadership and has the capacity to convene and shepherd a team of inter-institutional STEM faculty and social science or education researchers to write the desired proposal in a 1-2 year time-frame.

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

An institution may submit one proposal (either as a single institution or as subawardee or a member of an Inter-institutional Consortia project) from each constituent school or college that awards degrees in an S-STEM eligible discipline. The reasoning behind this restriction is that any eligible student must have a clear single S-STEM program where the student can apply for a scholarship. See Additional Eligibility Information below for more details (see IV. Eligibility Information). Institutions with a current S-STEM award should wait at least until the end of the third year of execution of their current award before submitting a new S-STEM proposal focused on students pursuing the same discipline(s).

**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* (PAPPG) guidelines apply. The complete

- text of the PAPPG is available electronically on the NSF website at: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg).
- o Full Proposals submitted via Grants.gov: *NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov* guidelines apply (Note: The *NSF Grants.gov Application Guide* is available on the Grants.gov website and on the NSF website at: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=grantsgovguide](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)).

## B. Budgetary Information

- **Cost Sharing Requirements:**

Inclusion of voluntary committed cost sharing is prohibited.

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

Not Applicable

- o **Other Budgetary Limitations:**

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

## C. Due Dates

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

April 07, 2021

Track 1, 2, 3 and Collaborative Planning grants

March 16, 2022

Third Wednesday in March, Annually Thereafter

## Proposal Review Information Criteria

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### Merit Review Criteria:

National Science Board approved criteria apply.

## 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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To meet the national need for a globally competitive STEM workforce, the National Science Foundation (NSF) established the Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM) program in accordance with the American Competitiveness and Workforce Improvement Act of 1998 (P.L. 105-227 and as reauthorized by P.L. 105-313 in 2000 and P.L. 108-447 in 2004). In response to the requirement in the H-1B Visa Reform Act of 2004, Public Law 108-447, Division J, Title IV, Subtitle B, Section 429(d), NSF published the list of eligible programs of study included in the scholarship program established by the Act. Current eligible programs of study are the biological sciences (except medicine and other clinical fields not funded by NSF), physical sciences, mathematical sciences, computer and information sciences, the geosciences, and engineering, as well as technology areas associated with the preceding fields (FR Doc. 05-2602). The program seeks to increase the success of domestic 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 addresses the challenges facing low-income academically talented students with demonstrated financial need by providing a wide range of Institutions of Higher Education (IHEs) with funds to support scholarships to domestic students from all backgrounds seeking degrees in S-STEM eligible disciplines. Funds also enable IHEs to establish a coherent ecosystem of effective evidence-based practices (curricular and co-curricular activities taking place during the academic year and over the summer and winter months if appropriate) and to assess the effects of those practices and other factors on retention, student success, academic/career pathways and degree attainment, including transfer, and entry into the US workforce or graduate programs in STEM. Proposals should seek to generate knowledge about how institutions create and strengthen learning environments for their scholars and their larger community of students that promote diverse, equitable, and inclusive participation in STEM. See Section IV.B for additional details.

## II. PROGRAM DESCRIPTION

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### A. Overview

The S-STEM program provides Institutions of Higher Education (IHEs) with funds for scholarships to encourage and enable domestic low-income, academically talented students with demonstrated financial need to enter the US workforce or graduate study following completion of associate, baccalaureate, or graduate degrees in S-STEM eligible disciplines. Recognizing that scholarships alone cannot address low retention and graduation rates in STEM among low-income students, the program also supports the implementation and testing of an ensemble of existing effective evidence-based curricular and co-curricular activities featuring: (1) close involvement of faculty in S-STEM eligible disciplines, (2) student mentoring, (3) provisions and adaptation of activities that support student success, including the formation of student cohorts and other effective practices (e.g., student support services; professional and workforce development activities).

Proposals with a strong focus on workforce development are encouraged to partner with business, industry, local community organizations, national labs, or other federal or state government organizations to provide appropriate opportunities to Scholars, including but not limited to internships, research and service learning activities and other opportunities above and beyond the financial support provided through scholarships. Proposals with a strong focus on the transfer or advancement of students from one educational level to another should collaborate with appropriate institutional partners. For example, proposals focused on the transfer of students from 2-year institutions to 4-year institutions should include faculty and administrators from 2-year institutions and 4-year institutions or proposals focusing on the advancement of undergraduate students to graduate programs should include institutions, administrators and Co-PIs representing both the undergraduate programs and institutions with graduate programs.

### B. Description of Program Tracks

#### Common Elements.

The following goals, principles and expectations apply to all Track 1, 2 and 3 projects.

**S-STEM Program Goals:** S-STEM awards in Tracks 1, 2 and 3 facilitate the establishment of infrastructure and collaborations to: (1) provide scholarships to domestic low-income academically talented students with demonstrated financial need pursuing a degree in one of the S-STEM eligible disciplines; (2) adapt and implement evidence-based curricular and co-curricular activities to support NSF S-STEM Scholars; (3) increase retention, student success, and graduation of these low-income students in STEM; (4) test strategies for systematically supporting student academic and career pathways in STEM in ways that are congruent with the institutional context and resources; and, (5) disseminate findings on what works related to the supports and interventions undertaken by the project, in particular to other institutions working to support low-income STEM students.

**Expected Student Outcomes:** It is expected that scholarship recipients will achieve at least one of the following outcomes by the end of the scholarship award period:

- Attain an associate, baccalaureate, or graduate degree in an S-STEM eligible discipline and enter the workforce or a graduate program in STEM;
- Transfer from an associate degree program to a baccalaureate degree program or advance from an undergraduate program to a graduate program in an S-STEM eligible discipline.

**Scholar Eligibility Criteria:** Scholars must be US citizens, permanent residents, US nationals, or admitted refugees pursuing a STEM eligible degree be low-income as defined by the institutional Office of Financial Aid or equivalent and have demonstrated unmet financial need. In addition, the proposal must define equitable criteria for scholar academic potential or talent. See Section IV.B. Scholarship Recipients for additional details.

**Evidence-based, context-specific interventions:** All proposals should include a literature review that establishes the basis for the proposed evidence-based activities. Projects must also focus on well-documented institutional needs or goals. Proposers are encouraged to build their project on needs analyses specific to the targeted population of low-income students in the proposed disciplines. Institutional self-studies relevant to the targeted student population can also be used to supplement the required analysis of the number of scholarship-eligible students and provide a more complete picture of what these students need. Based on needs assessment, proposers should focus on implementing appropriate interventions that target cognitive or non-cognitive aspects of student experiences and success (such as those that increase their professional identity like research experiences, internships, participation in student cohorts, the mentor/mentee relationship, self-efficacy interventions).

**Cohorts and Faculty Mentoring:** Educational research has established the importance of mentoring and cohort formation for low-income students. These efforts provide important touch-points for Scholars that can foster a sense of belonging and provide academic support. To this end, IHEs are expected to develop, support, and maintain student cohorts and provide S-STEM Scholars with faculty mentors.

The development of strong cohorts is especially important for proposals in which Scholars may come from different academic units or departments. In this case, proposals should also ensure that faculty mentors have sufficient expertise to support Scholars through any discipline- or major-specific challenges that might arise.

**Determination of Scholarship Amounts:** All proposals should provide an estimate and justification for the average scholarship amount. This value should balance the desire for a project to benefit the maximum number of students possible against the likelihood of students graduating in STEM. NSF expects that all projects will support Scholars until graduation or transfer. The scholarships awarded are expected to reduce the need for students to work or increase their debt during the academic year. Congress has established the maximum amount of an individual scholarship to be \$10,000 per year for up to 4 years at each institution that a Scholar attends.

**Cost of attendance:** Cost of Attendance (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, graduation fees, and costs related to a disability; and miscellaneous expenses. It is recommended that the PI works closely with the campus financial aid office for more information regarding the institutional COA.

**Determination of Scholar Financial and Academic Eligibility:** Beyond US citizenship or immigration status of the scholars pursuing an eligible STEM degree program, proposing institutions must determine all three additional eligibility requirements for Scholars: low-income status, demonstrated unmet financial need per FAFSA or GAANN, and academic potential. The institution's definition of low-income must be included in the proposal and in the letter from the Financial Aid Office or equivalent in supplementary documents. Academic potential must be defined by the institution in a way that allows for equitable consideration of all students.

Unmet financial need is calculated in part by the institution's determination of cost of attendance (COA). Generally, the Financial Aid Office determines unmet need as

$$\text{COA} - \text{Expected Family Contribution (EFC)} - \text{other grants and scholarships (for the purpose of this program should exclude loans and work)} = \text{Unmet Need.}$$

The EFC is determined by the FAFSA form and represents the expected family contribution toward the COA (<http://www.fafsa.ed.gov>).

NSF cannot prescribe the way in which local financial aid offices or departments develop policies or manage their students. NSF relies on local standard financial aid office policies to define low-income status in the same way that each institution determines measures of academic potential for its students.

The program encourages projects to establish recruitment and outreach programs that reach a diverse applicant pool that is inclusive of, but not limited to, members of underrepresented groups in STEM (e.g., African Americans, Hispanic Americans, Native Americans, including Alaska Natives and Native Pacific Islanders, persons with disabilities, first generation, rural, veterans and in some STEM disciplines, women), 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. However, by Congress mandate, all students who meet a project's eligibility requirements terms of low income, financial need, and academic potential must have an equal opportunity to receive scholarships, regardless of any other factors.

Demonstrated unmet financial need is not equivalent to low-income status. A student can be low-income and have a generous scholarship that covers all the student's expenses and therefore not have unmet need. Conversely, a student can demonstrate unmet need but not satisfy any acceptable definition of low-income. When determining eligibility, IHEs must first determine that students are low-income and then, from that pool, determine the level of unmet need.

In addition to meeting the financial criteria, Scholars should also demonstrate academic ability or potential, and be pursuing a STEM degree in an S-STEM eligible field. To ensure Scholars meet these requirements, IHEs are expected to establish clear and equitable selection criteria for scholarships and describe how Scholars will be selected out of the pool of all qualified individuals. Although a project may conduct targeted recruiting efforts to reach specific student populations, every applicant who meets the given eligibility requirements must receive equal consideration for a scholarship.

**Analysis of Prospective Scholar Pool.** All Track 1, 2 and 3 proposals must analyze institutional data at all pertinent institutions to determine the potential number of eligible Scholars. The analysis should include information from the Financial Aid offices of all involved institutions and describe the calculation method used to determine the number of students who meet the eligibility criteria presented.

NSF understands that this analysis must rely on data about current students and not future Scholars. The goal is to deduce how many students would qualify for the scholarships at the time of proposal submission and simulate different scenarios before deciding on academic requirements. Describing the general characteristics of the overall population of the institution's low-income students is insufficient to meet this analytical requirement. Instead, the data must be specific to the disciplines and the eligibility requirements, both financial and academic, specified in the proposal.

**Additional Budget Guidelines:** It is expected that proposers will request funds commensurate with the number of eligible Scholars determined by the Analysis of Prospective Scholar Pool. In addition, proposers are strongly encouraged to request funds for the number of years needed to support all students in different cohorts to graduation or successful transfer. For example, projects that aim to support entering first year students to complete a bachelor's degree could support three 4-year cohorts of students over six years. Projects that aim to support students to earn an associate degree could support five 2-year student cohorts.

In all Track 1, 2 and 3 proposals, at least 60% of all funds must be provided solely as scholarships to cover the cost of attendance and entered in the F.1. budget line.

Support for all non-scholarship costs must be included in remaining 40% of the budget. These non-scholarship costs could include:

1. Support for adaptation and implementation of high-quality evidence-based academic and non-academic student support efforts. Group activities, such as peer mentoring, tutoring, seminar series, bridge programs, and career development programs, may serve both Scholars and other students but individual funds can only be allocated to support Scholars.
2. Support for Scholar professional development experiences, such as internships, research experiences, and conference attendance. These experiences may be year-long or take place during academic recess periods, such as over summer or winter breaks. Note that NSF is particularly interested in supporting internships and research experiences in fields identified as critical needs for the Nation. These fields include quantum computing and quantum science, robotics, artificial intelligence and machine learning, computer science, data analytics, and other frontier STEM areas in need of domestic professionals.
3. Career counseling and job placement services for S-STEM Scholars.
4. Mental health services.
5. Equipment and internet services for the use of the scholars exclusively.
6. Support for management and external evaluation (formative and summative) of the project.

For proposals in all tracks, including Collaborative Planning grants, the level of funding requested should be congruent with the focus, scope, and size of the effort.

**Involvement of Office of Financial Aid and Other Campus Partners:** Successful Track 1, 2, and 3 projects must demonstrate the involvement of the Office of Financial Aid. In particular, each institution that will award scholarships must submit a letter from the Office of Financial Aid certifying the Office's understanding of the guidelines and requirements of the S-STEM program, confirming the institutional definition of low income, and stating their commitment to support the project as described in the proposal if awarded. Other offices or departments could also be included as appropriate, such as resident life, student services, tutoring centers, institutional research, and diversity, equity, and inclusion.

**Knowledge Generation and Dissemination:** This solicitation invites proposals for Collaborative Planning grants, as well as proposals to two scholarship-intensive tracks: Track 1 (Institutional Capacity Building) and Track 2 (Implementation: Single Institution). Track 1 and 2 proposals require a strong evaluation plan, but do not require an additional research component. In contrast, the solicitation also invites Track 3 (Inter-institutional Consortia) proposals, which must include both a strong evaluation plan and a strong research component. All proposals should include robust dissemination plans to share the project's implementation mechanisms, Scholar outcomes and/or other findings with communities that are similarly engaged in efforts to improve outcomes for low-income STEM students. Proposals should also seek to generate knowledge about how institutions create and strengthen learning environments for their scholars and their larger community of students that promote diverse, equitable, and inclusive participation in STEM. Project activities associated with knowledge generation should be informed by the Common Guidelines for Education Research and Development ([https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf13126](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf13126)).

**Evaluation:** Every Track 1, 2 and 3 proposal should describe a clear and specific external evaluation plan that is clearly aligned with the stated goals of the project and is executed by an evaluator that is external to the project. The evaluator is expected to be external to the project to provide objective and independent feedback regarding the progress of the overall project. The evaluation plan should include periodic formative evaluation to guide project improvement and to allow for any necessary corrective action, and summative evaluation to assess and document project outcomes, accomplishments, and lessons learned over the full duration of the project. Summative evaluation generally reports on the number of students who graduated from the program, their career trajectories and the implementation and lessons learned through the life of project. Beyond the direct impact on S-STEM Scholars, S-STEM projects should also attempt to measure the project's impact on the departments and/or disciplines involved, and on the institution.

The evaluation design should match the scope of the project and funds dedicated to evaluation efforts should be commensurate to the time requirements needed by a professional external evaluator to execute the plan appropriately. The external evaluator may be employed by a project's home institution, as long as he or she works in a separate organizational unit (e.g., a different department) that has a different reporting line than that of the project's home unit. The evaluator should not be Co-PI or senior personnel on the project but should be compensated appropriately using other direct cost lines, such as consulting or other direct costs. The budget justification for the external evaluation budget line should specify how many hours/days the evaluator will dedicate and the going rate.

In addition, S-STEM projects are required to participate in regular NSF-led data collection activities to follow student progress as specified in section VII. C of reporting requirements.

### **Description of S-STEM Tracks**

In addition to all the above elements common to Track 1, 2 and 3 proposals, the following sections describe each track differences:

#### *Track 1 (Institutional Capacity Building)*

Track 1 projects seek to increase the participation of institutions that have never had an award from the S-STEM program or the STEM Talent Expansion (STEP) program. This requirement applies to the institution as whole. One S-STEM or STEP award to any department or school within the institution makes the entire institution ineligible for a Track 1 award.

Track 1 projects must be led by a PI who is a STEM faculty member currently teaching in one of the S-STEM eligible disciplines being pursued by the targeted Scholars and who is also a member of the leadership and management team. The leadership and management team should also include a STEM administrator (department head or above). Faculty members from all departments or academic units involved should have a role in the project either as Co-PIs, senior personnel, or Scholar mentors. The project team could include, if appropriate, an institutional, educational, or social science researcher to contribute to project management and help guide responses to issues raised through formative evaluation. This additional researcher cannot take the place of the external evaluator.

Track 1 proposals may also include a focus on student transfer or progression to graduate school. In this case, if needed, two or more institutions could partner.

Track 1 proposals may request up to \$750,000 for up to 6 years.

#### *Track 2 (Implementation: Single Institution)*

Track 2 proposals have the same S-STEM goals as Track 1 proposals. They involve only one institution, but they will serve more Scholars than Track 1 proposals. Any IHE (as described under the eligibility section) can submit a Track 2 proposal, whether or not the institution has received prior S-STEM or STEP awards.

Track 2 proposals may also include a focus on student transfer or progression to graduate school. In this case, if needed, two or more institutions could partner.

Track 2 projects must be led by a PI who is a STEM faculty member currently teaching in one of the S-STEM eligible disciplines being pursued by the targeted Scholars and who is also a member of the leadership and management team. The leadership and management team should also include a STEM administrator (department head or above). Faculty members from all departments or academic units involved should have a role in the project either as Co-PIs, senior personnel, or Scholar mentors. The project team could include, if appropriate, an institutional, educational, or social science researcher to contribute to project management and support evidence-based responses to items raised by the external evaluator through formative evaluation. This additional researcher cannot take the place of the external evaluator.

Proposals for Track 2 may request up to \$1,500,000 for 6 years.

#### *Track 3 (Inter-institutional Consortia)*

Track 3 (Inter-institutional Consortia) projects support multi-institutional collaborations that focus on a common interest or problem. For example, a collaboration among community colleges and four-year institutions may focus on issues associated with successful student transfer from 2-year institutions to 4-year programs. In another example, a multi-institutional collaboration may focus on investigating factors, such as self-efficacy or identity, that contribute to the success or degree attainment of domestic, low income students.

Track 3 projects have the same overall goals as Track 1 and 2 projects but seek to accomplish these goals at a very large scale by leveraging multi-institutional efforts and infrastructure. In addition to the goals stated in section II.B for all tracks, Track 3 projects are expected to:

- Establish a strong and mutually beneficial collaboration across all institutions involved in the consortia, providing equivalent benefit to all institutions in terms of number of scholarships as well as in the infrastructure established to serve low-income students;
- Adapt, implement, evaluate, and develop a research design to understand effective evidence-based curricular and co-curricular activities and professional development that are appropriate and tailored to the target population of low-income students, STEM faculty, and different types of institutional contexts;
- Establish strong technical assistance and processes that support and manage project activities across institutions involved in the collaborative effort;

All Track 3 projects should engage in high quality research to advance understanding of how to adapt, implement and scale up effective evidence-based programs and practices designed to foster positive outcomes for low-income students in STEM. For instance, project research could examine the impact of curricular and co-curricular activities, professional development, or other practices and strategies that are intended to affect recruitment, retention, transfer, student success, academic/career pathways, degree attainment and/or entry into the STEM workforce or graduate programs.

NSF does not favor a particular research design over others. How the chosen research methods and approaches are aligned with and appropriate for the research goals should be fully explained in the proposal. The ultimate goal of S-STEM is to support low-income students. Projects are strongly discouraged from allowing a desired sample size to play a role in the determination of the size of awarded scholarships.

Track 3 projects are managed by leadership and management teams composed of faculty members who are currently teaching in an S-STEM eligible discipline(s), STEM administrators, and institutional, educational, or social science researchers. The PI of Track 3 proposals must be either a faculty member currently teaching in one of the S-STEM eligible disciplines, a STEM administrator (department head or above), or a researcher whose expertise is in institutional, educational, or social science research in higher education. Faculty from all the institutions and disciplines involved need to be included in the leadership team and/or senior personnel. The lead PI needs to demonstrate the capacity, experience and resources needed to manage a complex, large-scale project.

Track 3 proposals may request up to \$5 million for up to 6 years.

*Track 3 projects will be reviewed by NSF during their third year to determine whether satisfactory progress has been made, with continued funding contingent on the result of the third-year review.*

#### *Collaborative Planning Grants to Develop an Inter-institutional Consortium*

Collaborative Planning projects provide support for groups of two or more IHEs and other potential partner organizations to establish fruitful collaborations, increase understanding of complex issues faced by low-income students at each institution, establish inter-institutional agreements when necessary and develop mechanisms for cooperation in anticipation of a future Track 3 proposal that will benefit all institutions and their Scholars as equal partners.

This category of projects aims to provide proposers from two or more institutions the funds and time to establish the relationships and agreements necessary for submitting an Inter-institutional Consortia S-STEM proposal. It is expected that proposers will be ready to write and submit this Inter-institutional Consortia proposal within 1-2 years of receiving a Collaborative Planning grant award. Any subsequent proposals to S-STEM based on this work must describe the results of the planning effort.

Inter-institutional Consortia projects represent diverse collaborations, including partnerships between 2-year colleges and 4-year colleges and universities, between 4-year colleges and graduate programs, or between comparable institutions looking to implement and study parallel interventions. As such, Collaborative Planning grants can address these, or other, types of partnerships that might result in a stronger Track 3 proposal. Ideally, planning grants should reflect authentic collaborations between institutions and prepare collaborative partners to award scholarships at all collaborating institutions and provide programming according to each institution's needs assessment and realities.

A Collaborative Planning grant should allow institutions to gather data, design shared mechanisms for data collection and student support, and establish the necessary memorandum of understanding (MOUs) or articulation agreements to facilitate students' transition between institutions and ultimate success. Different methodological approaches may be employed to uncover the needs across institutions. PIs should propose approaches they feel are appropriate to their specific context. Surveys, focus groups, interviews, etc., can also be included in the planning grant as mechanisms to understand the needs of students. Furthermore, Collaborative Planning proposals must the following:

- describe what is already known about all potential partner institutions;
- describe the planning grant goals;
- name the individuals and offices that will be approached at each institution and describe the potential contributions of collaborators representing multiple perspectives;
- identify the steps to build effective collaborations for achieving the project goals (needs assessment, articulation agreements; meetings, etc.);
- identify the steps and actions to further refine and develop the future S-STEM Track 3 proposal, including how programmatic details will be decided (the interventions, the definition of the scholarship eligibility requirements based on institutional data; establishment of scholarship amounts, and methods), leveraging the expertise of the collaborators;
- describe how the development of the collaboration will lead to a stronger future Track 3 proposal, and;
- include a mechanism to assess the collaborative planning effort's progress towards its stated goals.

Furthermore, if appropriate, Collaborative Planning Grants may request funds to pilot evidence-based supports at one or more institutions in order to collect preliminary data and strengthen those activities. Participating institutions can also test new policies and administrative procedures that, per a needs assessment or other institutional data, have potential to remove barriers or otherwise improve outcomes for potential S-STEM Scholars.

Please note that, while collaborative planning projects may wish to share any findings or implementation mechanisms, a formal dissemination plan is not required.

Collaborative planning grants are managed by a PI who is either a faculty member teaching in any S-STEM eligible discipline or STEM administrator (e.g., Department Head, Chair, Dean or Associate Dean) at one of the institutions within the envisioned inter-institutional consortia. The PI must provide the required leadership and the capacity to convene and shepherd a team of inter-institutional STEM faculty and social science or education researchers to write the desired proposal in a 1-2-year time-frame. A successful Track 3 proposal will likely require a range of expertise including STEM faculty and administrators at all institutions, financial aid officers, and education, learning science or social science researchers interested in low-income student success or other pertinent topics. It is ideal that management of the planning grant incorporate the appropriate senior personnel across institutions as needed. Planning grants can also speak to potential gaps in expertise that might hinder a forthcoming Track 3 proposal and work to identify and build relationships with qualified individuals or



organizations that would enhance the impact of future collaborative efforts.

#### Further Information and Advice to Proposers

A cohesive S-STEM proposal clearly articulates the rationale for decisions and the details regarding how project components fit together in a logical framework. Supporting data, the educational literature, or lessons learned should be presented, as appropriate.

**About additional participation requirements in other project activities:** S-STEM projects often include enhancements such as seminars, field trips, social activities, student-faculty interaction outside classes, research opportunities, tutoring, and internships. These activities are valuable program components and often distinguish successful S-STEM implementations. Such activities may be expected as part of the scholarship program, but the expectations should be structured so that students who have other family, health, or work responsibilities can reasonably participate, and the expectations should be flexible enough to allow reasonable justified absences. Proposals should all include adequate justification that any required courses or activities will not increase Scholars' time to degree completion. Any funds allocated to additional activities will not count towards the required percentage of funds (60%) dedicated to scholarships. Under no circumstances should the scholarship funds be structured as compensation for either work or other project activities.

**About contributions to the body of knowledge:** The nature of S-STEM projects generally aligns with generation of knowledge through efficacy or effectiveness studies, as outlined in the Common Guidelines for Education Research and Development ([https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf13126](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf13126)). In this context, S-STEM projects should strive to increase understanding about the contributions that proposed student supports can make to program goals of STEM retention and graduation when coupled with scholarships. Track 1 and Track 2 projects are expected to contribute to knowledge by disseminating results from their external evaluation reports. Track 3 projects are expected to generate knowledge through external evaluation as well as through a clear research plan based on the scalability of the interventions to different institutions. This research is led by Co-PIs or senior staff who are faculty in social sciences or educational research. The faculty involved in the research component of Track 3 proposals cannot act as the external evaluator.

For Track 1, 2 and 3 projects, external evaluation must be conducted by an experienced evaluator who is not PI, Co-PI or senior personnel, but rather treated as an independent consultant to the project.

**About Cost of Attendance (COA) and Unmet Need Calculations:** In demonstrating unmet need, financial aid offices should not include loans and work study, instead, the S-STEM scholarship should be used to reduce or replace Scholars' need to work or acquire additional debt, to the extent possible. The calculation of need may include any other grants or scholarships that the student is entitled to. In that sense, an S-STEM scholarship should be treated as a "last dollar scholarship" that is, intended to be paid after all other grants and scholarships for which the student qualifies have been awarded; the calculation is based on the gap between what aid has been awarded and what aid is still needed to help a student meet the cost of attendance fully.

### III. AWARD INFORMATION

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The number and size of awards will vary depending upon the scope of projects and subject to availability of funds. Approximately \$80 - \$115 million is expected to be available annually to support approximately 60 - 70 new S-STEM Awards in these tracks.

Awards to support Track 1 (Institutional Capacity Building) projects may not exceed \$750,000 for up to 6 years. Awards to support Track 2 (Implementation: Single Institution) projects may not exceed \$1,500,000 for up to 6 years. Awards to support Track 3 (Inter-institutional Consortia) projects may not exceed \$5,000,000 for up to 6 years. The level of funding requested should be based on the focus, scope, and size of the effort. Awards to support Collaborative Planning grants may be up to \$150,000 for up to two years.

### IV. ELIGIBILITY INFORMATION

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#### Who May Submit Proposals:

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.

#### Who May Serve as PI:

For Track 1 (Institutional Capacity Building) and Track 2 (Implementation: Single Institution) projects, the Principal Investigator must be a faculty member currently teaching in an S-STEM eligible discipline 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 and leadership responsibility. Faculty from all departments involved need to have roles in the project as either Co-Principal investigators or senior personnel. Other members of the S-STEM senior project leadership and management team may be listed as Co-Principal Investigators.

For Track 3 (Inter-institutional Consortia) projects, the Principal Investigator must be a faculty member currently teaching in an S-STEM eligible discipline or an institutional, 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 and leadership responsibility. Faculty from all institutions and departments involved need to have roles in the project as either Co-Principal investigators or senior personnel. Other members of the S-STEM senior project leadership and management team may be listed as Co-Principal Investigators or as Principal Investigators on collaborative research proposals.

Collaborative Planning grants are intended to help a collection of institutions plan for a future Track 3 proposal. For Collaborative Planning

grants, the Principal Investigator must be a faculty member teaching in any S-STEM eligible discipline or STEM administrator (e.g., Department Head, Chair, Dean or Associate Dean) at one of the institutions within the envisioned inter-institutional consortia, who can provide the required leadership and has the capacity to convene and shepherd a team of inter-institutional STEM faculty and social science or education researchers to write the desired proposal in a 1-2 year time-frame.

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

An institution may submit one proposal (either as a single institution or as subawardee or a member of an Inter-institutional Consortia project) from each constituent school or college that awards degrees in an S-STEM eligible discipline. The reasoning behind this restriction is that any eligible student must have a clear single S-STEM program where the student can apply for a scholarship. See Additional Eligibility Information below for more details (see IV. Eligibility Information). Institutions with a current S-STEM award should wait at least until the end of the third year of execution of their current award before submitting a new S-STEM proposal focused on students pursuing the same discipline(s).

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

There are no restrictions or limits.

#### **Additional Eligibility Info:**

##### **A. Institutions**

- An institution may submit one proposal from each constituent college or school that awards S-STEM 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 proposals. 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 in this example could choose to submit a single joint proposal.)
- An institution that is part of a larger system is considered separate for proposal submission purposes if it is geographically separate from the other campus(es) and has its own chief academic officer. The address of the place of performance should be different as well.
- Institutions with current active S-STEM awards should not submit a new proposal focusing on the same student population until after the third year of execution has been completed and the corresponding annual report approved.

##### **B. Scholarship Recipients**

S-STEM scholarship recipients will be selected by the awardee institution(s), but recipients 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. Please note that Deferred Action for Childhood Arrivals (DACA) individuals are ineligible for support from this solicitation unless they meet the requirements listed in the first sentence of this bullet by the time of application;
- Be enrolled at least half-time as defined by the institution in a program leading to an associate, baccalaureate, or graduate S-STEM eligible degree in an S-STEM eligible discipline;
- Demonstrate academic ability or potential as defined by the institution;
- Be low-income. The definition of low-income must follow the institutional guidelines for income thresholds that qualify the student as low-income (for example, see eligibility requirements for the US Department of Education (DOE) Pell [<https://www2.ed.gov/programs/fpg/index.html>] and TRIOS grant [<http://www2.ed.gov/about/offices/list/ope/trio/incomelevels.html>] programs or for the US Department of Housing and Urban Development (HUD) public housing program [[https://www.hud.gov/topics/rental\\_assistance/phprog](https://www.hud.gov/topics/rental_assistance/phprog)]). The institution's definition of low-income must be included in supplementary documents within the letter from the Financial Aid Office.
- Have demonstrated unmet financial need. Demonstrated financial need for undergraduate students is defined by the US Department of Education rules for need-based Federal financial aid Free Application for Federal Student Aid (FAFSA), or, for graduate students, it is defined as financial eligibility for Graduate Assistance in Areas of National Need (GAANN). In the case of S-STEM, institutions are required to follow the calculations in section II.B that include other grants and scholarships but not work or loans (see <https://studentaid.ed.gov/sa/fafsa/next-steps/how-calculated#need-based>).

## **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 FastLane or Grants.gov.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG). The complete text of the PAPPG is available electronically on the NSF website at: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg). Paper copies of the PAPPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 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: ([https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=grantsgovguide](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link

and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 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 FastLane. PAPPG Chapter II.D.3 provides additional information on collaborative proposals.

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

### **Full Proposal Content**

The following descriptions of content sections refer to Track 1, 2 and 3 proposals. Collaborative planning grant proposals should follow the PAPPG guided by pertinent description in section II.B.

#### **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 appears in the list of forms for the proposal only after the appropriate Program Solicitation number has been selected (indicated on the cover of this document) and indicated on the proposal cover sheet that has been saved. Select the appropriate Track in the drop-down menu.

#### **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 being proposed. For Track 1, 2 and 3, also include the number of scholarships to be provided, the number of unique scholarship recipients, the disciplinary 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**

##### **Project Description Content Checklist**

The proposal should clearly describe the plan for implementing a program with the goals and characteristics outlined in the prior and following sections. Proposers must make sure that the proposal includes, within the project description (limited to 15 single-spaced pages), the following:

- Results from prior NSF support, in particular any previous or current S-STEM or STEP awards at the institution;
- Description of the implementation of curricular and co-curricular activities, student support services and programs, and their impact on students;
- Discussion of the Common Elements presented in Section II.B: expected student outcomes, Scholar eligibility criteria, analysis of the prospective Scholar pool, context-specific interventions, cost of attendance, determination of Scholar eligibility, determination of scholarship amounts.
- Clear plans for cohort-building and faculty mentoring activities.
- A detailed recruiting plan, reflective of institutional context.
- Description of the management plan, including discussion of the role of faculty in the disciplines in the operation of the project;
- For Track 3, research questions, methods and methodology that will lead to a clear contribution to the knowledge base on how the pertinent evidence-based curricular and/or co-curricular practices affect low-income student success and degree attainment in STEM when coupled with scholarship support;
- For Track 1, 2 and 3, plans for project evaluation (formative and summative); and
- Plans for dissemination. For Track 1, 2 and 3, dissemination of results from project evaluation should also contribute to the knowledge base.
- For planning grants, a clear timeline of 1 to 2 years maximum and description of the proposed activities.

The Project Description must conform to PAPPG formatting requirements. For Track 1, Track 2 and Track 3 proposals, it must not exceed 15 single-spaced pages. For Collaborative Planning grants, it must not exceed 12 single-spaced pages. Proposals that exceed the page limit will be returned without review.

In addition to the requirements specified in the PAPPG, the Project Description for Collaborative Planning grants must describe relevant institutional needs and challenges, the envisioned collaboration and rationale, the population of students that the collaboration will target and the activities at each collaborating institution that will be enabled by the planning grant in order to prepare all parties involved to plan and prepare for a future Track 3 project with the potential to benefit equally all institutions and students involved.

In addition to the requirements specified in the PAPPG, the Project Description for Track 1, Track 2, and Track 3 proposals must contain the following information:

a. Results from Prior NSF Support

Report on the results from related prior NSF support in accordance with NSF PAPPG requirements (see Chapter II.C.2.d(iii) of the PAPPG). Additionally, if there have been any prior S-STEM or Science, Technology, Engineering, and Mathematics (STEM) Expansion Program (STEP) awards at the institution, even if not to the same group of PI or Co-PIs, those results should be included here. The proposed project should build on the experience from the prior or ongoing project. Proposals should include quantitative and qualitative outcomes of any current or former project(s) and how the experience has informed plans for the current project. 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. Required information is listed below.

Results from prior or ongoing STEP and S-STEM awards should include at a minimum: Award number(s); amount of the scholarship; number of scholarship recipients; number and percentage of recipients transferring from 2-year institutions to 4-year programs (if appropriate); number of recipients graduating; percentage of recipients graduating; and number and percentage of recipients leaving the program. If available, proposers could include a concise description of the project activities, retention and graduation rates. Descriptions of the results from prior S-STEM and/or STEP support must also discuss: (1) lessons learned from the implementation of project activities and outcomes of the project(s) and (2) how these lessons influenced the proposed project.

b. Activities and Infrastructure on Which the Current Project Builds

S-STEM projects should build on existing academic infrastructure and student supports and evidence from the research literature that those supports are effective. Proposals should discuss such already existing 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 those structures. Proposals should describe and justify their adaptation of those support services and programs implemented for S-STEM Scholars and other STEM students. If the institution or a member of a consortium of institutions has had a previous S-STEM and/or STEP award, proposals should also show how the proposed project will build on lessons learned from those efforts.

c. Project Significance, Objectives and Rationale

The project should have specific objectives that reflect the goals of the S-STEM program and local needs. The proposal should provide detailed plans to foster expected student outcomes as discussed in Section II.B.

d. Pool of Potential Scholars and Determination of Scholarship Amount

All Track 1, 2 and 3 proposals should include the following, as detailed in Section II.B: Scholar eligibility criteria, each institutions' cost of attendance, a clear mechanism to determine Scholar eligibility, a justification of scholarship amounts and an analysis of the prospective Scholar pool.

When discussing the pool of potential Scholars, data on all low-income students at the institution is insufficient unless it addresses the disciplines and academic eligibility requirements put forth in the proposal. For example, consider a project that targets computer science students and defines a student to be low income if they are Pell eligible. In this case, the potential pool of applicants should be calculated by considering historic or current data for computer science students who are both (a) Pell eligible, (b) have demonstrated unmet financial need, and (c) meet measurable academic eligibility requirements imposed by the project team (e.g., above certain GPA, above an SAT threshold, etc.). The following table (or similar) should be included in this section:

Department	Number of domestic Low-Income Students with Unmet Need Currently Registered (per year if applicable)					Average GPA	Average unmet need
	1st year	2nd Year	3rd Year	4th Year	other years...		
A							
B							
C							
<b>Total Number of Eligible Students</b>							

Proposals should also include current 1-year retention rates and graduation rates for the above pool of students in each S-STEM eligible discipline that is included in the proposal.

e. S-STEM Student Support Services and Programs

It is expected that awardee institutions will have or will adapt existing high-quality evidence-based practices (e.g., curricular and co-curricular activities; professional, and workforce development activities) designed to enhance student learning, academic performance, retention to graduation, and career or higher education placement. All Track 1, 2 and 3 proposals must include detailed plans to provide Scholars with STEM faculty mentors and placement in student cohorts as discussed in Section II.B. For all tracks, the selection of activities, students support services and other planned interventions should draw upon the current research literature and the ways in which the impact of these evidence-based approaches can be assessed.

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 for extracurricular activities are valuable components of S-STEM projects that can be strongly encouraged but not required. The primary criteria for continued scholarship eligibility should be satisfactory progress towards degree or successful transfer. The one exception is that graduate students can be required to conduct research if they are doing research as part of their thesis or dissertation. Proposals should include adequate justification that any suggested courses, seminars or other activities will not increase Scholars' time to degree completion.

See Section II.B for additional types of allowable Scholar support, and Section V.A.8 for further discussion of budget details.

f. 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. The proposal must describe specific roles for each person in the project. The lead PI will have overall responsibility for administering the project and for interacting with NSF.

Responsibility 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, etc., must be assigned in this plan.

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

#### g. Generation of Knowledge

For Tracks 1 and 2, projects should strive to inform understanding about the effectiveness [1] of factors and/or activities associated with retention, student success, transfer, academic/career pathways, and degree attainment through the dissemination of their evaluation results. The project's effectiveness should be assessed according to the nature of the problem that the proposed approach is intended to address. While an external evaluator independent from the project team must be substantively responsible for the design and execution of the evaluation plan, dissemination of what works is still the responsibility of the PI team. Incorporation of local expertise in institutional, educational, or social science research could provide significant guidance for the development and execution of focused programming and facilitate generation of knowledge but is not a requirement for Track 1 and 2.

For Track 3, proposals should clearly describe the approach and research questions to be tested and should provide a strong theoretical or empirical justification for their choices, including the role and impact of institutional and student contexts. The study design should leverage this justification to identify suitable project data, describe plans for data collection, and select appropriate methodologies for data analysis. These features of the study design should be aligned with the scope and focus of the project approach. The inclusion of appropriate expertise in institutional, educational, or social science research is expected to guide the development and implementation of knowledge generation within the project. The research component of Track 3 projects is different from the external evaluation and should not be executed by the same personnel. External evaluation is discussed in the next section.

#### h. Evaluation

Each Track 1, 2 and 3 proposal should describe a clear and specific external evaluation plan that is clearly aligned with the stated goals of the project and is executed by an external evaluator as detailed in Section II.B. Collaborative Planning Grant proposals do not require an external evaluator and should include a mechanism to assess the collaborative planning effort's progress towards its stated goals.

#### i. Dissemination

All Track 1, 2 and 3 proposals should include robust dissemination plans to share the project's implementation mechanisms, Scholar outcomes and/or other findings with communities that are similarly engaged in efforts to improve outcomes for low-income STEM students.

#### j. Broader Impacts

As specified in the PAPPG, the Project Description also must contain, as a separate section within the narrative, a section labeled "Broader Impacts".

#### 6. References Cited

References should draw on the discipline-based education research literature, on the literature on STEM teaching and learning, and on the research literature on higher education.

#### 7. Biographical Sketches

Include a 2-page biographical sketch (following the instructions in the current PAPPG) 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 Track 1, 2 or 3 project is expected to be 6 years.

The maximum S-STEM request for Track 1 may not exceed \$750,000. The maximum S-STEM request for Track 2 may not exceed \$1,500,000. The maximum S-STEM request for Track 3 may not exceed \$5,000,000.

The following instructions refer to the NSF proposal budget form. The sections and budget line designations correspond to the FastLane budget screen.

- For Tracks 1, 2 and 3 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 average total amount of scholarship funds requested were determined. It is expected that scholarships to individual students may vary because of differences in unmet financial need.
- At least 60% of the total requested amount must go to scholarships to cover the cost of attendance of domestic, academically talented low-income students with unmet need. The number of unique students helped each year should be recorded in every budget year.
- Faculty salary requests must be accompanied by an appropriate indication of the fraction of academic or summer months to be paid by the grant.
- For Tracks 1, 2, and 3 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, dissemination 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 PAPPG 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.
- 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.
- Proposals can include within their scholarship budgets funds to support Scholars overcoming financial hurdles that prevent them from continuing in school or degree attainment. For example, help to students who meet the low income definition and who have completed all degree requirements in the field(s) supported by the proposal, but cannot obtain their degree because of debt to the college or university is possible. These scholarship supports cannot exceed the \$10,000 per year of allowable funds per student. Other supports who do not count as scholarships can be paid out of the 40% remaining budget funds (e.g., payments to students for participation in internships, research experiences, conference attendance, etc.)

For Tracks 1, 2, 3 and Collaborative Planning grants, funds should also be included for the PI or another member of the leadership team to attend periodic S-STEM PI Conferences. For Tracks 1, 2 and 3 these funds should cover participation for at least one member of the PI team to come to Washington DC every other year (at least 3 times during the life of the award). For Track 3 proposals, funds for the entire leadership team to come to Washington for the third-year review should be included.

#### 9. Current and Pending Support

See PAPPG Chapter II.C.2.h

#### 10. Facilities, Equipment, and Other Resources

See PAPPG Chapter II.C.2.i.

#### 11. Supplementary Documentation

Supplementary documents are limited to the specific types of documents listed in PAPPG Chapter II.C.2.j with the following exceptions for Track 1, 2 and 3 proposals:

- Proposals must include a letter from the Financial Aid Office or equivalent that includes the commitments and information outlined in Section II.B.
- Proposals must include the following information in a single document PDF entitled "Project Details" in tabular form. If scholarships of different amounts or lengths of time are planned, the first table should be duplicated multiple times to capture all the information. For collaborative and multi-institutional proposals, the requested data should be provided for each institution separately.

Name of institution =	<i>Enter Name</i>
Anticipated number of unique Scholars supported =	<i>Enter Number</i>
Anticipated average annual amount of each scholarship =	<i>Enter Amount or Range</i>
Anticipated number of years of scholarship support per Scholar =	<i>Enter Number or Range</i>

Name of degree on diploma awarded to Scholars:
Name #1
Name #2
Name #3
Name #4, etc.

Proposals that include supplementary documents beyond those specified in the PAPPG and this solicitation may be returned without review.

[1] Institute of Education Sciences, US Department of Education and the National Science Foundation. (2013). Common Guidelines for Education Research and Development: A Report from the Institute of Education Common Guidelines for Education Research and Development, Sciences, US Department of Education and the National Science Foundation, August 2013, [NSF 13-126](#). Arlington, VA: National Science Foundation.

## B. Budgetary Information

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### Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

### Other Budgetary Limitations:

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

## C. Due Dates

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

April 07, 2021

Track 1, 2, 3 and Collaborative Planning grants

March 16, 2022

Third Wednesday in March, Annually Thereafter

## D. FastLane/Research.gov/Grants.gov Requirements

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### For Proposals Submitted Via FastLane or Research.gov:

To prepare and submit a proposal via FastLane, see detailed technical instructions available at: <https://www.fastlane.nsf.gov/a1/newstan.htm>. To prepare and submit a proposal via Research.gov, see detailed technical instructions available at: [https://www.research.gov/research-portal/appmanager/base/desktop?\\_nfpb=true&\\_pageLabel=research\\_node\\_display&\\_nodePath=/researchGov/Service/Desktop/ProposalPreparationandSubmission.html](https://www.research.gov/research-portal/appmanager/base/desktop?_nfpb=true&_pageLabel=research_node_display&_nodePath=/researchGov/Service/Desktop/ProposalPreparationandSubmission.html). For FastLane or Research.gov user support, call the FastLane and Research.gov Help Desk at 1-800-673-6188 or e-mail [fastlane@nsf.gov](mailto:fastlane@nsf.gov) or [rgov@nsf.gov](mailto:rgov@nsf.gov). The FastLane and Research.gov Help Desk answers general technical questions related to the use of the FastLane and Research.gov systems. 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: <https://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 or Research.gov may use Research.gov 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 PAPPG Exhibit III-1.

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

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

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

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

### A. Merit Review Principles and Criteria

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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. (PAPPG Chapter II.C.2.d(i). contains additional information for use by proposers in development of the Project Description section of the proposal). Reviewers are strongly encouraged to review the criteria, including PAPPG Chapter II.C.2.d(i), prior to the review of a proposal.

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

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

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

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

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

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

## B. Review and Selection Process

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

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

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

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

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

## VII. AWARD ADMINISTRATION INFORMATION

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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 [https://www.nsf.gov/awards/managing/award\\_conditions.jsp?org=NSF](https://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF). Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 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 *Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg).

## 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 no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

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

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

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

**S-STEM Monitoring system:** In response to the need for NSF to report on the operation and success of the S-STEM program, an additional web-based data collection site has been developed for the purpose of collecting information about program participants. This system: S-STEM.ORG is maintained by an external contractor.

Each S-STEM PI is required to complete information about each S-STEM Scholar and subsequently update the information reported through the website 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.

**Third Year Review for S-STEM Track 3 Inter-institutional Consortium awards:** Track 3 projects are 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 in advance to the third-year anniversary to successful Track 3 grantees. Third year reviews provide feedback and guidance for project implementation and assessment of project outcomes. Project teams present information on the status of project activities and outcomes to date. After the review of project documentation and a presentation by the awardee team, a team of S-STEM staff will acknowledge accomplishments, discuss shortcomings, and make recommendations to improve project implementation as appropriate. If a third-year review is not satisfactory, NSF reserves the right to cancel the project.

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:

- Alexandra Medina-Borja, Lead, telephone: (703) 292-7557, email: [amedinab@nsf.gov](mailto:amedinab@nsf.gov)
- Michael J. Ferrara, Co-Lead, telephone: (703) 292-2635, email: [mferrara@nsf.gov](mailto:mferrara@nsf.gov)
- Thomas D. Kim, Co-Lead, telephone: (703) 292-4458, email: [tkim@nsf.gov](mailto:tkim@nsf.gov)
- Susan Carson, telephone: (703) 292-5111, email: [scarson@nsf.gov](mailto:scarson@nsf.gov)
- Mary Crowe, telephone: (703) 292-5111, email: [mcrowe@nsf.gov](mailto:mcrowe@nsf.gov)
- Michael J. Davis, telephone: (703) 292-5111, email: [mdavis@nsf.gov](mailto:mdavis@nsf.gov)
- Connie K. Della-Piana, telephone: (703) 292-5309, email: [cdellapi@nsf.gov](mailto:cdellapi@nsf.gov)
- Bonnie Green, telephone: (703) 292-5111, email: [bongreen@nsf.gov](mailto:bongreen@nsf.gov)

- Abiodun Ilumoka, telephone: (703) 292-2703, email: [ailumoka@nsf.gov](mailto:ailumoka@nsf.gov)
- John Jackman, telephone: (703) 292-4816, email: [jjackman@nsf.gov](mailto:jjackman@nsf.gov)
- Jill K. Nelson, telephone: (703) 292-5111, email: [jnelson@nsf.gov](mailto:jnelson@nsf.gov)
- Pushpa Ramakrishna, telephone: (703) 292-2943, email: [pusramak@nsf.gov](mailto:pusramak@nsf.gov)
- Dawn M. Rickey, telephone: (703) 292-4674, email: [drickey@nsf.gov](mailto:drickey@nsf.gov)
- Eric J. Sheppard, telephone: (703) 292-5111, email: [esheppar@nsf.gov](mailto:esheppar@nsf.gov)
- Keith A. Sverdrup, telephone: (703) 292-4671, email: [ksverdr@nsf.gov](mailto:ksverdr@nsf.gov)
- Paul Tymann, telephone: (703) 292-2832, email: [ptymann@nsf.gov](mailto:ptymann@nsf.gov)

For questions related to the use of FastLane or Research.gov, contact:

- FastLane and Research.gov Help Desk: 1-800-673-6188
- FastLane Help Desk e-mail: [fastlane@nsf.gov](mailto:fastlane@nsf.gov)
- Research.gov Help Desk e-mail: [rgov@nsf.gov](mailto:rgov@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](#).

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 <https://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* (FASSED) provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See the *NSF Proposal & Award Policies & Procedures Guide* Chapter II.E.6 for instructions regarding preparation of these types of proposals.

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

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

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

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

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

Send an e-mail to: [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov)

or telephone: (703) 292-8134

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

## PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See [System of Record Notices, NSF-50](#), "Principal Investigator/Proposal File and Associated Records," and [NSF-51](#), "Reviewer/Proposal File and Associated Records." 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  
Alexandria, VA 22314

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