

CyberCorps(R) Scholarship for Service (SFS)

Defending America's Cyberspace

PROGRAM SOLICITATION

NSF 23-574

REPLACES DOCUMENT(S):

NSF 21-580



National Science Foundation
Directorate for STEM Education
Division of Graduate Education

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

July 17, 2023

July 15, Annually Thereafter

IMPORTANT INFORMATION AND REVISION NOTES

Cybersecurity-related aspects of other fields, including artificial intelligence, quantum computing, and aerospace, have been added to the scope of the program.

- Institutional responsibilities have been updated to require that institutions provide initial and exit counseling for students and require scholarship recipients to provide **annual** verifiable documentation of post-scholarship employment.
- Expectations of renewal applications have been updated by adding the development of innovative interdisciplinary approaches to cybersecurity education and workforce development.
- The student stipends and direct cost allowance for program expenses were increased.
- The additional Review Criteria section has been updated.

Any proposal submitted in response to this solicitation should be submitted in accordance with the [NSF Proposal & Award Policies & Procedures Guide \(PAPPG\)](#) that is in effect for the relevant due date to which the proposal is being submitted. The NSF PAPPG is regularly revised and it is the responsibility of the proposer to ensure that the proposal meets the requirements specified in this solicitation and the applicable version of the PAPPG. Submitting a proposal prior to a specified deadline does not negate this requirement.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

CyberCorps(R) Scholarship for Service (SFS)

Synopsis of Program:

Cyberspace has transformed the daily lives of people. Society's overwhelming reliance on cyberspace, however, has exposed the system's fragility and vulnerabilities: corporations, agencies, national infrastructure, and individuals continue to suffer cyber-attacks. Achieving a truly secure cyberspace requires addressing both challenging scientific and engineering problems involving many components of a system, and vulnerabilities that stem from human behaviors and choices. Examining the fundamentals of security and privacy as a multidisciplinary subject can lead to fundamentally new ways to design, build, and operate cyber systems, protect existing infrastructure, and motivate individuals to learn about cybersecurity. The Cybersecurity Enhancement Act of 2014, as amended by the National Defense Authorization Acts for 2018 and 2021, and the CHIPS and Science Act of 2022, authorizes the National Science Foundation (NSF), in coordination with the Office of Personnel Management (OPM) and the Department of Homeland Security (DHS), to offer a scholarship program to recruit and train the next generation of cybersecurity professionals to meet the needs of the cybersecurity mission of federal, state, local, and tribal governments. The goals of the CyberCorps® Scholarship for Service (SFS) program are aligned with the [U.S. strategy](#) to develop a superior cybersecurity workforce. The program goals are to: (1) increase the number of qualified and diverse cybersecurity candidates for government cybersecurity positions; (2) improve the national capacity for the education of cybersecurity professionals and research and development workforce; (3) hire, monitor, and retain high-quality CyberCorps® graduates in the cybersecurity mission of the Federal Government; and (4) strengthen partnerships between institutions of higher education and federal, state, local, and tribal governments. While all three agencies work together on all four goals, NSF's strength is in the first two goals; OPM's in goal (3); and DHS in goal (4).

The SFS Program welcomes proposals to establish or to continue scholarship programs in cybersecurity. A proposing institution must provide clearly documented evidence of a strong existing academic program in cybersecurity. In addition to information provided in the proposal narrative, such evidence can include ABET accreditation in cybersecurity; a designation by the National Security Agency and the Department of Homeland Security as a Center of Academic Excellence in Cyber Defense Education (CAE-CDE), in Cyber Operations (CAE-CO) or in Research (CAE-R); or equivalent evidence documenting a strong program in cybersecurity.

Service Obligation: All scholarship recipients must work after graduation in the cybersecurity mission of a federal, state, local, or tribal government organization, or certain other qualifying entities, for a period equal to at least the length of the scholarship.

The SFS Program also supports efforts leading to an increase in the ability of the United States higher education enterprise to produce cybersecurity professionals. Funding opportunities in this area are provided via the [Secure and Trustworthy Cyberspace - Education Designation \(SaTC-EDU\)](#) and other programs (see the section "Increasing National Capacity in Cybersecurity Education" for more details.)

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.

- Victor P. Piotrowski, Lead Program Director, telephone: (703) 292-5141, email: vpiotrow@nsf.gov
- Ambareen Siraj, Program Director, telephone: (703) 292-8182, email: asiraj@nsf.gov
- ChunSheng Xin, Program Director, telephone: (703) 292-7353, email: cxin@nsf.gov
- Li Yang, Program Director, telephone: (703) 292-2677, email: liyong@nsf.gov

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

- 47.076 --- STEM Education

Award Information

Anticipated Type of Award: Continuing Grant

Estimated Number of Awards: 12 to 16

Anticipated Funding Amount: \$20,000,000

The estimated number of awards and the anticipated funding amount listed above are for new awards in FY 2024. The number of awards and funding level in future years are anticipated to be similar to FY 2024. Funding amounts and the number of awards subject to the availability of funds.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Community colleges are eligible only as sub-awardees of the partnering four-year SFS institutions as described in the Program Description section.

Who May Serve as PI:

As of the submission deadline, PIs, co-PIs, or other senior project personnel must hold primary, full-time, paid appointments in research or teaching positions at US-based campuses of institutions eligible to submit to this solicitation (see above), with exceptions granted for family or medical leave, as determined by the submitting institution.

Limit on Number of Proposals per Organization: 1

Each performing organization is limited to one (1) proposal per annual SFS competition. Institutions with an active SFS scholarship project must wait at least (a) until they are within 24 months from the current SFS award's end date, and (b) until they have used at least 70 percent of their budget, before submitting another SFS proposal.

Potential PIs are advised to contact their institutional office of research regarding processes used to select proposals for submission.

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

An individual must not participate as PI, Co-PI, or Senior Personnel on more than one (1) proposal submitted to the same deadline.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required

- **Full Proposals:**

- Full Proposals submitted via Research.gov: *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.
- 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).

B. Budgetary Information

- **Cost Sharing Requirements:**

Inclusion of voluntary committed cost sharing is prohibited.

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

Not Applicable

- **Other Budgetary Limitations:**

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

C. Due Dates

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

July 17, 2023

July 15, Annually Thereafter

Proposal Review Information Criteria

Merit Review Criteria:

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

Award Administration Information

Award Conditions:

Standard NSF award conditions apply.

Reporting Requirements:

Standard NSF reporting requirements apply.

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I. INTRODUCTION

Cyberspace has transformed the daily lives of people and become critical to national priorities in commerce, education, energy, financial services, healthcare, manufacturing, and defense. Society's overwhelming reliance on cyberspace, however, has exposed the system's fragility and vulnerabilities. The challenges of a global hyper-connectedness are becoming more apparent. The privacy of personally identifiable information is often violated on a massive scale by persons unknown. The United States' competitive advantage is eroded by the exfiltration of significant intellectual property. Law enforcement is hobbled by difficulties of attribution, national boundaries, and uncertain legal and ethical frameworks. All these concerns now affect the public's trust in cyberspace and the ability of institutions to fulfill their missions.

The National Science and Technology Council, with the cooperation of NSF, released the [Federal Cybersecurity Research and Development Strategic Plan](#). This plan is a broad, coordinated Federal strategic plan for cybersecurity research and development, produced to preserve the growing social and economic benefits of cyberspace by thwarting adversaries and strengthening public trust of cyber systems. One of the priority areas is Artificial Intelligence (AI) that enables autonomous systems to perform tasks that have historically required human cognition and what are typically considered human decision-making abilities. The plan highlights the mutual needs and benefits of AI and cybersecurity. The emerging threats posed by AI-enhanced autonomous systems deserve serious attention. Conversely, AI techniques are expected to enhance cybersecurity by either automating certain routine tasks or assisting human system managers to monitor, analyze, and respond to adversarial threats to cyber systems. The CyberCorps® Scholarship for Service (SFS) program supports collaborative efforts among the AI, cybersecurity, and education research communities to foster a robust workforce with integrated AI and cybersecurity competencies, and to explore new collaborations at the intersection of cybersecurity and other priority areas such as quantum information science, next generation wireless networks, or aerospace. In addition, NSF contributes to multi-agency efforts for the [National Initiative for Cybersecurity Education \(NICE\)](#). NSF recognizes that cybersecurity education and workforce development form critical elements for successful implementation and transition to practice of any advances in cybersecurity research and development.

II. PROGRAM DESCRIPTION

Cybersecurity is arguably one of the most important challenges confronting society in the information age. Neither governments nor individuals are exempt from the ravages of cyber-attacks. However, posing cyber conflict solely in terms of classic attackers and defenders understates the diversity and subtlety of the motivations, incentives, ethics, asymmetries, and strategies of the constituent actors in cyberspace. The intelligent adversary, whether a nation-state actor, an AI bot, an activist group, or a criminal, learns and evolves to exploit, disrupt, and overpower. Addressing the challenge of cybersecurity requires a coordinated multi-disciplinary approach, contributing to the body of knowledge on cybersecurity in multiple disciplines, and leading to practical, deployable technologies. These efforts require an innovative and efficient cybersecurity education system that will create an unrivaled cybersecurity workforce critical to US national security, continued economic growth, and future technological innovation in secure cyberspace.

The goals of the CyberCorps® SFS Program are to: (1) increase the number of qualified and diverse cybersecurity candidates for government cybersecurity positions; (2) improve the national capacity for the education of cybersecurity professionals and research and development workforce; (3) hire, monitor, and retain high-quality CyberCorps® graduates in the cybersecurity mission of Federal Government; and (4) strengthen partnerships between institutions of higher education and federal, state, local, and tribal governments. Examples of partnerships between SFS institutions and government organizations include internship agreement, advisory boards, speaker series, participation in cybersecurity task forces, etc. The SFS Program welcomes proposals to establish or to continue scholarship programs in cybersecurity. All scholarship recipients must work after graduation for a federal, state, local, or tribal government organization in a position related to cybersecurity, or as educators in the field of cybersecurity at an SFS institution, for a period equal to at least the duration of the scholarship. A proposing institution must provide clearly documented evidence of a strong existing program in cybersecurity. In addition to information provided in the proposal narrative, such evidence may include ABET accreditation in cybersecurity; designation by the National Center of Academic Excellence in Cybersecurity (NCAE-C); or equivalent evidence documenting a strong program in cybersecurity. The SFS Program also supports efforts leading to an increase in the ability of the United States higher education enterprise to produce cybersecurity professionals.

SFS Scholarships

The SFS Program provides funds to institutions of higher education for student scholarships in support of education in areas relevant to cybersecurity and cybersecurity-related aspects of other related fields as appropriate, including artificial intelligence, quantum computing, and aerospace. Each scholarship recipient, as a condition of receiving a scholarship under the SFS Program, enters into an agreement under which the recipient, upon receipt of their academic degree, agrees to work for a period equal to at least the duration of the scholarship in the cybersecurity mission of an executive agency (as defined in 5 U.S. Code § 105) or, subject to prior approval, in the cybersecurity mission of:

- Congress, including any agency, entity, office, or commission established in the legislative branch;
- an interstate agency;
- a state, local, or tribal government; or
- a state, local, or tribal government-affiliated non-profit organization that is considered to be critical infrastructure (as defined in 42 U.S. Code § 5195c(e)).

The U.S. Office of Personnel Management (OPM) partners with NSF in this program by providing assistance in matching SFS students to potential agencies, coordinating students' transition into government employment, monitoring students' compliance with program requirements, and assessing whether the program helps meet the personnel needs of the federal government for information infrastructure protection. The term SFS Program Office means an office managing the SFS Program through a partnership between the NSF and the OPM. Grantee institutions provide scholarship support to students who compete successfully in a selection process developed by the institution, who meet the SFS eligibility criteria.

The program's goal is to place all SFS students in government cybersecurity positions, with at least 70 percent of scholarship recipients securing placement in the federal government's executive branch. While SFS scholarship recipients are responsible for their own job searches, the SFS Program Office provides several tools to aid in the job search, including annual job fairs. Principal Investigators (PIs) and SFS scholarship students are expected to participate actively with the SFS Program Office to secure both a summer internship and permanent placement in the executive branch of the federal government. With permission of the SFS Program Office, a limited number of students, but no more than 20 percent of scholarship recipients, may be placed in a non-executive federal agency; state, local or tribal government organization; National Laboratories; or Federally Funded Research and Development Centers (FFRDCs). (See <http://www.firstgov.gov/Agencies.shtml> for a list of federal, state, local and tribal government agencies; see <https://science.energy.gov/sbir/applicant-resources/national-labs-profiles-and-contacts/> for a list of National Laboratories; see <https://www.nsf.gov/statistics/> for a list of FFRDCs.) Materials to assist PIs and scholarship recipients with the placement process are available through the SFS support website: <http://sfs.opm.gov/>.

With permission of the SFS Program Office, a limited number of students, but no more than 10 percent of scholarship recipients, may be placed as educators in the field of cybersecurity at qualified institutions of higher education that provide SFS scholarships; see <https://sfs.opm.gov/Academia/Institutions> for a list of current SFS projects. Such placement would fulfill the student's service obligation.

During the scholarship period, students must participate in meaningful summer internships related to cybersecurity. Doctoral students may be allowed to replace their summer internship with a research activity following a recommendation from their academic advisor and approval of the SFS Program Office. Students must also participate in other SFS activities supported/recommended by their institutions such as conferences, competitions workshops, and seminars. These activities are aimed at developing a community of practice that will enhance students' individual and collective skills in an area increasingly important to the security of the United States.

To be eligible for consideration for an SFS scholarship, a student must:

- be a citizen or lawful permanent resident of the United States;
- demonstrate a commitment to a career in cybersecurity;
- have demonstrated a high level of competency in relevant knowledge, skills, and abilities, as defined by the NICE Cybersecurity Workforce Framework;
- be a full-time student in a coherent formal program that is focused on cybersecurity at an awardee institution (a) with sophomore standing in an associate's degree program; or (b) with junior or senior standing in a bachelor's degree program; or (c) enrolled in a master's degree program; or (d) enrolled in a research-based doctoral program.

Second-year students at community colleges are eligible for one year of support if there is a formal agreement between their community college and a four-year institution to transfer the student for two years of additional support to complete a bachelor's degree. A community college is eligible only as a sub-awardee of the partnering four-year SFS institution. A supported student who is enrolled in a community college is allowed to pursue a degree on a less than full-time basis, but not less than a half-time basis with prorated scholarship amounts.

Each proposing institution must provide a description of its selection criteria and process. Internship placements and final job placements in government organizations typically require high-level security clearances, and scholarship recipients are required to undergo the background investigation necessary to obtain such clearances as part of the job and/or internship application process. This needs to be emphasized during the recruitment and initial counseling sessions as described below in the section on institutional responsibilities.

The proposals must describe a project plan with goals, objectives, and corresponding evaluation metrics. They ought to provide evidence, if applicable, of a rigorous cybersecurity curriculum, student research opportunities, quality mentoring and counseling toward academic success and government career, extra-curricular activities to increase cybersecurity competencies, cybersecurity faculty's support for SFS scholars, and other information related to the Additional Solicitation Specific Review Criteria in section VI.A.2. SFS institutions typically require their scholars to have a minimum of four cybersecurity courses in their program of study. Proposals could focus on themes aligning with ongoing or emerging areas of cybersecurity such as, but not limited to, secure design and production of software and hardware systems, resilient cyberinfrastructure and software supply chain, cybersecurity in the age of artificial intelligence, cybersecurity in the post-quantum era, cyber operations, human and societal aspects of cybersecurity, and privacy.

Proposing institutions, regardless of whether they submit new or renewal proposals, must have clearly articulated management and administrative plans for the following program elements:

- Verification of scholarship candidates' eligibility, including the recipients' academic merit, appropriate professional skills, and enrollment in a cybersecurity program.
- Budgeting for scholarships consisting of stipends, tuition, education-related fees, and other allowances described below. Scholarships are not based on student financial need.
- Provision of academic-year stipends of \$27,000 per year for undergraduate students and \$37,000 per year for graduate students. These charges shall be included in the budget under Participant Support costs. Although projects can request No-Cost Extensions (NCEs) at the end of the five-year period, the design of the cohort plan must ensure that the last cohort of scholars will complete their program of study within the five-year budget.
- Provision of scholarship amounts to be used for expenses normally incurred by full-time students at the institution, including tuition and education-related fees (does not include items such as meal plans, housing, or parking); and a professional allowance of \$6,000 per academic year for the SFS Job Fair and other related travel, conferences, research materials, books and supplies including a one-time purchase of a laptop, professional training, and certifications, etc. While scholarship stipends and allowances must be included in the budget under Participant Support costs, detailed budgeting on the use of the \$6,000 professional allowance is not required. Provision for coordination with SFS Program Office for summer internships and permanent job placements for each student based on the SFS PI guidebook. Students are required to take government internship positions in the summer between their first and second year of scholarship study and are encouraged to take additional internships in the following years. Summer internships typically are paid for by the hiring agency. Funding for summer internships should not be included in the proposed SFS budget. Doctoral students may be allowed to substitute research activity for their summer internship following the recommendation of their academic advisor and approval of the SFS Program Office.
- Provisions for tracking the academic progress of students to determine their continued eligibility throughout the academic part of the program based on the SFS PI guidebook. Post-graduation tracking of students to verify that they meet the service obligation will be the joint responsibility of the SFS Program Office and the academic institution.

The above items must be clearly detailed in the Budget Justification section, or other appropriate sections of the proposal.

Applications from institutions that have not previously participated in the SFS Program will be considered separately from proposals from renewing institutions. Institutions with a current SFS scholarship project must wait at least (a) until they are within 24 months from the current SFS award's end date, and (b) until they have expended at least 70 percent of their budget, before submitting another SFS proposal. All institutions that supported SFS students in the past must provide:

- specific evidence of their current SFS project achievements. Indicators of project success include, but are not limited to, placement statistics, faculty development activities, integration of research and education, mentoring of non-SFS institutions, partnerships with government and relevant employment sectors, community outreach with impact, and curricular/program innovations.
- development of innovative and potentially transformative interdisciplinary approaches to cybersecurity education and workforce development.
- specific plans and/or evidence of project sustainability and/or institutionalization efforts including information on students without SFS scholarships who were placed in government jobs and the retention of SFS scholarship recipients in the federal workforce beyond their initial obligation.

The underrepresentation of many groups in cybersecurity and computing, including women, Blacks and African Americans, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians, Native Pacific Islanders, and persons with disabilities, deprives the nation of the opportunity to benefit from large segments of the population becoming cybersecurity professionals or researchers. Ending underrepresentation will require a range of measures, including institutional programs and activities as well as culture change across colleges, departments, classes, and research groups. Proposing institutions should

describe their current demographics, existing initiatives in broadening participation, and provide plans for recruitment, mentoring, and retention of SFS scholars who are members of underrepresented racial and ethnic minority groups, women, first-generation/low-income students, persons with disabilities, or veterans. Proposers are especially encouraged to establish linkages, as appropriate, with the components of the national network of NSF INCLUDES projects (see https://www.nsf.gov/news/special_reports/big_ideas/includes.jsp) and Broadening Participation in Computing (BPC) (see <https://bpcnet.org/>).

Scholarship funds awarded to students for stipends, tuition and education-related fees, and student professional allowances must be listed as Participant Support Costs in the NSF proposal budget (Line F on the NSF budget form and Field E on the Grants.gov budget). Additional funds up to \$12,000 per student-year (year of one student support) may be requested for activities in other direct cost categories (e.g., faculty and staff salaries, travel, materials, supplies, etc.) that contribute to the effectiveness of the scholarship program and to the SFS goal of creating and maintaining a robust cybersecurity workforce. Any such costs must be listed under the appropriate NSF budget categories and must be explained in the Budget Justification.

The Principal Investigator will have overall responsibility for the administration of the institution's award, the management of the project, and interactions with the SFS Program Office. The PI and the grantee institution are expected to have or to develop an administrative structure that enables faculty, academic administrators, scholarship recipients, and others involved in the project to interact productively during the award period. The PI is expected to be an integral participant in the educational activities of the SFS project and is required to participate in boot camps, annual SFS job fairs, and PI briefings/meetings.

Institutional Responsibilities

The institution receiving the award ("Awardee") shall require that each recipient of a scholarship accepts the terms of the scholarship and agrees to provide the institution and the SFS Program Office with annual verifiable documentation of post scholarship employment and up-to-date contact information during the commitment phase defined in the CyberCorps® SFS agreement. The awardee is required to have SFS scholarship recipients complete counseling before receiving the CyberCorps® scholarship ("Initial Counseling"); and before they complete the Scholarship Phase ("Exit Counseling"). The Initial Counseling informs prospective SFS scholarship recipients about the SFS scholarship program and service obligation requirements; and the circumstances under which an SFS scholarship needs to be repaid or treated as a Direct Unsubsidized Loan to be repaid. The Exit Counseling provides information about fulfilling the SFS scholarship service obligation, options for temporarily deferring the period of completing the service obligation, and terms and conditions under which the CyberCorps® scholarship must be repaid.

The awardee is required to collect signed CyberCorps® SFS agreements and submit them to the SFS Program Office.

The Awardee is required to monitor the compliance of scholarship recipients with respect to their post-scholarship employment obligations, and provide to the SFS Program Office, on an annual basis, the verifiable post-scholarship employment documentation through the completion of scholarship recipients' post-scholarship employment obligations. Scholarship recipients must agree, as a condition of their scholarship, to provide this information to the Awardee and the SFS Program Office.

As required by the 15 U.S. Code § 7442, a SFS scholarship recipient shall be financially liable to the United States if the individual:

- fails to maintain an acceptable level of academic standing;
- is dismissed from the applicable institution of higher education for disciplinary reasons;
- withdraws from the eligible degree program before completing the program;
- declares that he/she does not intend to fulfill the post-award employment obligation; or
- fails to fulfill the post-award employment obligation.

Failure to satisfy the academic requirements of the program or to complete the service requirement will result in forfeiture of the scholarship award, which must either be repaid or reverted by the institution to a student loan pro-rated accordingly to reflect partial service completed.

The Awardee is responsible for determining the repayment amounts and notifying the recipient and the SFS Program Office of the amounts owed when the service obligation is not fulfilled. The Awardee must collect the repayment amounts, including interest, in a manner consistent with the provisions of a Federal Direct Unsubsidized Stafford Loan under part D of Title IV of the Higher Education Act of 1965. All forfeited scholarship funds, less reasonable, allocable, and allowable Awardee costs associated with collection of the repayment not to exceed 5% of the forfeited amount, will be returned to the United States Treasury and may not be reused by the Awardee. Scholarship recipients in coordination with the Awardee and the PI may petition the NSF Director, through the SFS Program Office, for the partial or total deferral (suspension) or discharge of any service or repayment obligation whenever compliance by the individual with the obligation is impossible or would involve extreme hardship to the individual, or if enforcement of such obligation with respect to the individual would be unconscionable. Extreme hardship could include but is not limited to financial/economic burden, medical situations, or other situations as determined by the Director of NSF. Awardees shall also consider using Forgivable Loan Promissory Notes or similar agreements between the institution and the student to facilitate repayment. Awardee institutions will be provided with additional guidelines and applicable federal regulations.

Increasing National Capacity in Cybersecurity Education

The SFS Program supports efforts that are likely to lead to an increase in the ability of the United States higher education enterprise to produce cybersecurity professionals. The proposals may be submitted via the Education Designation in the NSF-wide Secure and Trustworthy Cyberspace (SaTC-EDU) program. More information can be found at https://nsf.gov/funding/pgm_summ.jsp?pims_id=504709. Also, as authorized by 15 U.S. Code § 7442, the SFS Program in partnership with the National Security Agency (NSA) provides funding to improve cybersecurity education at the kindergarten through 12th grade levels to:

- increase interest in cybersecurity careers;
- help students practice correct and safe online behavior and understand the foundational principles of cybersecurity;
- improve teaching methods for delivering cybersecurity content for kindergarten through grade 12 computer science curricula; and
- promote teacher recruitment in the field of cybersecurity.

The proposals addressing these efforts can be submitted to the GenCyber program at <http://www.gen-cyber.com/hosts/>. Dear Colleague Letters (DCLs) may also be issued to inform the community about upcoming opportunities or special competitions for proposals addressing emerging areas of cybersecurity education and workforce development.

Program Evaluation

NSF conducts ongoing program monitoring and evaluation to determine how effectively the SFS Program is achieving its goals. In addition to project-specific evaluations, all project participants are expected to cooperate with this third-party program evaluation and respond to all inquiries, including requests to participate in surveys, interviews, and other approaches for collecting evaluation data. The awardee should strongly encourage SFS scholarship recipients to participate in surveys conducted by the project and/or SFS Program evaluators. Additional guidelines will be provided to institutions that receive Scholarship awards.

Project-Specific Evaluation

While the evaluation of the SFS Program is external to the projects at SFS institutions, SFS projects shall clearly state goals and have a project-level evaluation plan explaining how the goals will be measured at the institution level. Evaluation plans should include both a strategy for monitoring the project as it evolves to provide feedback to guide these efforts (formative evaluation) and a strategy for evaluating the effectiveness of the project in achieving its goals and for identifying positive and constructive findings when the project is completed (summative evaluation). The project-specific evaluations of the specific award activities should provide indicators of project achievement including, but not limited to, the areas of placement, student achievement, broadening participation, faculty development, curriculum, and institutional partnerships. The evaluation should assess and document project outcomes, accomplishments, and lessons learned. In addition, the awardees are also expected to cooperate with the SFS program-level monitoring and evaluation teams. Funds to support an evaluator independent of the project must be requested. The evaluator must be external to the project, though may be employed by a project's home institution if they work in a separate organizational unit that has a different reporting line from that of the project's home unit. The evaluator may not serve as a PI, co-PI, or Senior Personnel on the project. The proposal must identify appropriate assessment and evaluation plans for project improvement, as well as plans for programmatic evaluation at the end of the project for accountability purposes. The evaluation plans must clearly align with the stated goals of the project. 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. For information about effective approaches to evaluation, see the following resources:

- [The 2010 User-Friendly Handbook for Project Evaluation](#)
- [Online Evaluation Resource Library \(OERL\)](#)

Special Projects

The program is also interested in ideas for forward-looking or unconventional activities that show real promise to have a broad national impact on cybersecurity education and workforce development but fall outside the SFS and SaTC-EDU program boundaries. Principal Investigators who have such ideas must first discuss them with an SFS Program Officer. If the program officer agrees that the activities would be appropriate for consideration by the program, the program officer may encourage the submission of an unsolicited proposal.

III. AWARD INFORMATION

The SFS Scholarship award supports up to three years of stipends, tuition, and allowances for students in the general area of cybersecurity. The scholarships provide academic year stipends of \$27,000 per year for undergraduate students and \$37,000 per year for graduate students. In addition, SFS scholarships cover expenses normally incurred by full-time students in the institution, including tuition and education-related fees (does not include items such as meal plans, housing, or parking); and a professional allowance of \$6,000 per academic year for SFS Job Fairs and other travel, conferences, research materials, books and supplies including a one-time purchase of a laptop, professional training and certifications, etc. These shall be included in the budget under Participant Support costs.

The tuition amount in the proposal budget should reflect average tuition that would be applied to a similar student without an SFS scholarship. The U.S. Department of Education College Affordability and Transparency Center provides information about average tuition and net prices at postsecondary institutions that will be used to assess the proposal's budget. After accepting a negotiated net cost, the institution is required to exempt SFS scholars from paying any tuition and fees unless such charges are optional or refundable.

NSF anticipates that approximately \$20 million will be available for new awards in FY 2024, pending the availability of funds. Scholarship awards are usually funded as continuing grants over a five-year period. A typical award might be approximately \$2-4 million for five years supporting four cohort classes of five students each. Depending on the quality of proposals received, the program expects to make 12-16 scholarship awards. The estimated program budget, number of awards, and average award size/duration are subject to the availability of funds.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Community colleges are eligible only as sub-awardees of the partnering four-year SFS institutions as described in the Program Description section.

Who May Serve as PI:

As of the submission deadline, PIs, co-PIs, or other senior project personnel must hold primary, full-time, paid appointments in research or teaching positions at US-based campuses of institutions eligible to submit to this solicitation (see above), with exceptions granted for family or medical leave, as determined by the submitting institution.

Limit on Number of Proposals per Organization: 1

Each performing organization is limited to one (1) proposal per annual SFS competition. Institutions with an active SFS scholarship project must wait at least (a) until they are within 24 months from the current SFS award's end date, and (b) until they have used at least 70 percent of their budget, before submitting another SFS proposal.

Potential PIs are advised to contact their institutional office of research regarding processes used to select proposals for submission.

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

An individual must not participate as PI, Co-PI, or Senior Personnel on more than one (1) proposal submitted to the same deadline.

Additional Eligibility Info:

A proposing institution must provide clearly documented evidence of a strong existing program in cybersecurity. Such evidence may include ABET accreditation in cybersecurity; designation by the National Center of Academic Excellence in Cybersecurity (NCAE-C); or equivalent evidence documenting a strong program in cybersecurity.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Research.gov or Grants.gov.

- Full Proposals submitted via Research.gov: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the *NSF Proposal and Award Policies and 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. 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. The Prepare New Proposal setup will prompt you for the program solicitation number.
- 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). 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.

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 Research.gov. PAPPG Chapter II.E.3 provides additional information on collaborative proposals.

See PAPPG Chapter II.D.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.

Proposal Compliance Check

All proposals are checked for compliance with applicable PAPPG requirements prior to submission in Research.gov. Additional information on NSF auto-compliance checks is available on the NSF website. In addition, manual compliance check of SFS proposals is performed by NSF staff. The most common compliance issues in the SFS proposals are described below.

Results from Prior NSF Support. The project description must report on results from prior NSF support in accordance with NSF PAPPG requirements. The purpose of the section, labeled "Results from Prior NSF Support" is to assist reviewers in assessing the quality of prior work conducted with prior or current NSF funding. If any PI or co-PI identified on the proposal has received prior NSF support including an award with an end date in the past five years, or any current funding, including any no cost extensions. Information on the award is required for each PI and co-PI, regardless of whether the support was directly related to the proposal or not. In cases where the PI or any co-PI has received more than one award (excluding amendments to existing awards), they need only report on the one award that is most closely related to the proposal. Support means salary support, as well as any other funding awarded by NSF, including research, Graduate Research Fellowship, Major Research Instrumentation, conference, equipment, travel, and center awards, etc. Please see Chapter II.D.2.d of the PAPPG for a list of information that must be provided.

Broader Impacts. The Project Description also must contain, as a separate section within the narrative, a section labeled "Broader Impacts". This section should provide a discussion of the broader impacts of the proposed activities. 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 the achievement of societally relevant outcomes. Such outcomes include, but are not limited to: the 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 U.S.; use of science and technology to inform public policy; and enhanced infrastructure for research and education. These examples of societally relevant outcomes should not be considered either comprehensive or prescriptive. Proposers may include appropriate outcomes not covered by these examples.

Supplementary Documentation. As stated in the NSF PAPPG, the entire project description must be included in the 15-page Project Description section. There are only a small number of exceptions allowed in the supplementary section of the proposal, such as: Postdoctoral Researcher Mentoring Plan (if applicable); Plans for Data Management; Letters of Collaboration; documents asserting compliance with the National Environmental Policy Act or the Endangered Species Act; etc. See Chapter II.D.2.i of the NSF PAPPG for more information. This solicitation allows only the following additional exceptions: a copy of a certificate of ABET accreditation in cybersecurity; designation by the National Center of Academic Excellence in Cybersecurity (NCAE-C); or an equivalent certificate in cybersecurity education and research. All letters of collaboration should follow the PAPPG guidelines. Letters of support are not authorized by this program solicitation, and proposals including such letters may be returned without review.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

The SFS Scholarship award supports up to three years of stipends, tuition, and allowances for students in the general area of cybersecurity. The scholarships provide academic year stipends of \$27,000 per year for undergraduate students and \$37,000 per year for graduate students. In addition, SFS scholarships cover expenses normally incurred by full-time students in the institution, including tuition and education-related fees (does not include items such as meal plans, housing, or parking); and a professional allowance of \$6,000 per academic year for SFS Job Fair and other travel, conferences, research materials, books and supplies including a one-time purchase of a laptop, professional training, and certifications, etc. The funds awarded to students for stipends, tuition and education-related fees, and student professional allowances must be listed as Participant Support Costs in the NSF proposal budget. Additional funds up to \$12,000 per student-year may be requested for activities in other direct cost categories (e.g., salaries, travel, materials, supplies, etc.) that contribute to the effectiveness of the Scholarship program; any such costs must be listed under the appropriate NSF budget categories and must be explained in the Budget Justification.

C. Due Dates

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

July 17, 2023

July 15, Annually Thereafter

D. Research.gov/Grants.gov Requirements

For Proposals Submitted Via Research.gov:

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. For Research.gov user support, call the Research.gov Help Desk at 1-800-673-6188 or e-mail rgov@nsf.gov. The Research.gov Help Desk answers general technical questions related to the use of the Research.gov system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

For Proposals Submitted Via Grants.gov:

Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: <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. 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 Research.gov for further processing.

Proposers that submitted via 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

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/.

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *Leading the World in Discovery and Innovation, STEM Talent Development and the Delivery of Benefits from Research - NSF Strategic Plan for Fiscal Years (FY) 2022 - 2026*. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the strategic objectives in support of NSF's mission is to foster integration of research and education through the programs, projects, and activities it

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

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

A. Merit Review Principles and Criteria

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

1. Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. **Both** criteria are to be given **full consideration** during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (PAPPG Chapter II.D.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.D.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 other underrepresented groups in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

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

appropriate.

Additional Solicitation Specific Review Criteria

In addition to the standard NSF Intellectual Merit and Broader Impacts Criteria, reviewers will be required to carefully consider the extent to which the following aspects are addressed in proposals submitted to the SFS Program:

- The quality of education and research in cybersecurity at the institution, the extent to which they are integrated, and research opportunities for students.
- The quality of experiential learning environment to increase students' knowledge, skills, and competencies in cybersecurity.
- The quality and extent to which students are engaged in extra-curricular activities related to cybersecurity and privacy.
- The evidence-based broadening participation strategies at the institution and specific plans for recruitment, mentoring, and retention of SFS scholars who are members of underrepresented racial and ethnic minority groups, women, first-generation/low-income students, persons with disabilities, or veterans.

B. Review and Selection Process

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

Proposals recommended by the panel will be site visited.

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

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

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by an NSF Grants and Agreements Officer. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award notice, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award notice; (4) the applicable award conditions, such as Grant General Conditions (GC-1)*; or Research Terms and Conditions* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award notice. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at 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.

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.

Administrative and National Policy Requirements

Build America, Buy America

As expressed in Executive Order 14005, [Ensuring the Future is Made in All of America by All of America's Workers](#) (86 FR 7475), it is the policy of the executive branch to use terms and conditions of Federal financial assistance awards to maximize, consistent with law, the use of goods, products, and materials produced in, and services offered in, the United States.

Consistent with the requirements of the Build America, Buy America Act (Pub. L. 117-58, Division G, Title IX, Subtitle A, November 15, 2021), no funding made available through this funding opportunity may be obligated for an award unless all iron, steel, manufactured products, and construction materials used in the project are produced in the United States. For additional information, visit NSF's [Build America](#), [Buy America](#) webpage.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

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

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

More comprehensive information on NSF Reporting Requirements and other important information on the administration of NSF awards is contained in the *NSF 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.

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Victor P. Piotrowski, Lead Program Director, telephone: (703) 292-5141, email: vpiotrow@nsf.gov
- Ambareen Siraj, Program Director, telephone: (703) 292-8182, email: asiraj@nsf.gov
- ChunSheng Xin, Program Director, telephone: (703) 292-7353, email: cxin@nsf.gov
- Li Yang, Program Director, telephone: (703) 292-2677, email: liyong@nsf.gov

For questions related to the use of NSF systems contact:

- NSF Help Desk: 1-800-673-6188
- [Research.gov](#) Help Desk e-mail: 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.

IX. OTHER INFORMATION

The NSF website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this website by potential proposers is strongly encouraged. In addition, "NSF Update" is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF [Grants Conferences](#). Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. "NSF Update" also is available on [NSF's website](#).

[Grants.gov](#) provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this mechanism. Further information on [Grants.gov](#) may be obtained at <https://www.grants.gov>.

ABOUT THE NATIONAL SCIENCE FOUNDATION

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

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

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

Facilitation Awards for Scientists and Engineers with Disabilities (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.F.7 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: nspfpubs@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
Policy Office, Division of Institution and Award Support
Office of Budget, Finance, and Award Management
National Science Foundation
Alexandria, VA 22314



National Science Foundation, 2415 Eisenhower Avenue, Alexandria, Virginia 22314, USA
Tel: (703) 292-5111, FIRS: (800) 877-8339 | TDD: (703) 292-5090 or (800) 281-8749

[Text Only](#)