Workplace Equity for Persons with Disabilities in STEM and STEM Education

PROGRAM SOLICITATION
NSF 23-593

National Science Foundation

Directorate for STEM Education
Division of Equity for Excellence in STEM
Division of Graduate Education
Division of Undergraduate Education
Research on Learning in Formal and Informal Settings

Directorate for Biological Sciences

Directorate for Computer and Information Science and Engineering

Directorate for Engineering

Directorate for Geosciences

Directorate for Mathematical and Physical Sciences

Directorate for Social, Behavioral and Economic Sciences

Directorate for Technology, Innovation and Partnerships

Office of Integrative Activities

Office of International Science and Engineering

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

September 19, 2023

Third Tuesday in September, Annually Thereafter

Research and Synthesis Project Proposal Submissions Must Adhere to this Deadline

Full Proposal Target Date(s):

September 19, 2023

Third Tuesday in September, Annually Thereafter

Conference, EAGER, and RAPID Proposals are Accepted Before or After the Target Date. An EAGER or RAPID proposal may only be submitted after receipt of an NSF program officer concurrence email specifying that a proposal may be submitted.

IMPORTANT INFORMATION AND REVISION NOTES

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:

Workplace Equity for Persons with Disabilities in STEM and STEM Education

Synopsis of Program:

The Workplace Equity for Persons with Disabilities in STEM and STEM Education solicitation, which is managed by the Division of Equity for Excellence in STEM in the Directorate for STEM Education, supports fundamental, applied, and translational research that advances knowledge and practice about diverse, equitable, inclusive, and accessible STEM and STEM education workplaces and postsecondary training environments for persons with disabilities. Proposals should focus on one or more of the following three research themes: (1) Studying barriers and solutions to diversity, equity, inclusion, and accessibility in STEM and STEM education workplaces and training settings for persons with disabilities; (2) Applying intersectional social identity perspectives to investigate characteristics and conditions of STEM and STEM education workplaces and training environments that limit and/or improve diversity, equity, inclusion, and accessibility for persons with disabilities; and (3) Conducting use-inspired and solution-oriented translational research about diverse, equitable, inclusive, and accessible STEM and STEM Education workplaces and training settings for persons with disabilities.

Research proposals must address key project design components: (1) The inclusion of researchers, experts, and organizations with authentic disability experiences; (2) The identification of disability type(s) to be investigated; (3) The specific STEM and/or STEM education workplaces and postsecondary training settings to be studied; (4) The use of theoretical and/or conceptual frameworks and robust research hypotheses, questions, designs, methodologies, data analyses, and data interpretation; (5) A plan to assess the success of the project; and (6) A plan for the accessible dissemination of knowledge and practice outcomes to traditional and new audiences.

The amount of funding and duration requested in the Research proposals submitted in response to this solicitation should align with the maturity of the proposed work and the size and scope of the project activities. Research proposals may request a budget up to $1,500,000 and a duration up to five (5) years. All proposals should justify the requested level of funding and duration in the project description. This solicitation also invites Synthesis projects, which are a very specific type of Research proposal. Synthesis projects may propose budgets up to $600,000 and project durations up to three (3) years. This solicitation also invites proposals for Conferences, EArly-concept Grants for Exploratory Research (EAGER), and Rapid Response Research (RAPID). Facilitation Awards for Scientists and Engineers with Disabilities (FASED) are always welcome. The solicitation's Section II, Program Description, provides additional information about each type of proposal.

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.

- Christopher Atchison, Program Director, EDU/EES, telephone: (703) 292-2154, email: catchiso@nsf.gov
- Ronda J. Jenson, Program Director, EDU/EES, telephone: (703) 292-5028, email: rjenson@nsf.gov

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

- 47.041 --- Engineering
- 47.049 --- Mathematical and Physical Sciences
- 47.050 --- Geosciences
- 47.070 --- Computer and Information Science and Engineering
- 47.074 --- Biological Sciences
- 47.075 --- Social Behavioral and Economic Sciences
- 47.076 --- STEM Education
- 47.079 --- Office of International Science and Engineering
- 47.083 --- Office of Integrative Activities (OIA)
- 47.084 --- NSF Technology, Innovation and Partnerships

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 10 to 20

The estimated number of awards is subject to the availability of funds.

Anticipated Funding Amount: $5,000,000

The estimated program budget is 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) - 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.
- Non-profit, non-academic organizations: Independent museums, observatories, research laboratories, professional societies and similar organizations located in the U.S. that are directly associated with educational or research activities.
- For-profit organizations: U.S.-based commercial organizations, including small businesses, with strong capabilities in scientific or engineering research or education and a passion for innovation.
- State and Local Governments: State educational offices or organizations and local school districts.
- Tribal Governments: The governing body of any Indian or Alaska Native tribe, band, nation, pueblo, village, or community that the Secretary of the Interior acknowledges to exist as an Indian tribe under the Federally Recognized Indian Tribe List Act of 1994 (25 U.S.C. 479a, et seq.)

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

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

There are no restrictions or limits.

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):

  September 19, 2023

  Third Tuesday in September, Annually Thereafter

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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:

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

Reporting Requirements:

Standard NSF reporting requirements apply.

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I. INTRODUCTION

The Workplace Equity for Persons with Disabilities in STEM and STEM Education solicitation is managed by the Division of Equity for Excellence in STEM in the Directorate for STEM Education. This solicitation is aligned with the NSF 2022-2026 Strategic Plan (NSF 22-068), which prioritizes, in Strategic Goal 1, the importance of empowering the "Missing Millions" to fully participate in STEM; and emphasizes, in Strategic Objective 1.1, the importance of ensuring the accessibility and inclusivity of communities underrepresented in STEM. A commitment to diversity, equity, inclusion, and accessibility in STEM and STEM education must address under-served, underrepresented, and marginalized populations, including persons with disabilities enrolled in postsecondary training who intend to enter the STEM and STEM education workforce; those with disabilities already employed in STEM and STEM education workplaces; and professionals with disabilities who have STEM and STEM education degrees and remain under- or unemployed.

Proposals are encouraged from community colleges, primarily undergraduate institutions, minority-serving institutions (https://www2.ed.gov/about/offices/list/ocr/edlite-minorityinst.html), women's colleges, institutions primarily serving persons with disabilities, and master's level institutions. Proposals are also welcomed from institutions in EPSCoR (Established Program to Stimulate Competitive Research) jurisdictions. The solicitation encourages collaborations between institutions of higher education and businesses, and the inclusion of varied contributions from non-profit organizations and entrepreneurs. International collaborations are also encouraged.

Postsecondary students with disabilities do not complete STEM degrees at the same rates as their peers (US Department of Labor, 2015). 11% of the STEM workforce with at least a bachelor's degree have a disability (NSF 23-315). The proportion of workers with a disability in STEM has not changed from 2011 to 2021 and many well-educated persons with disabilities remain unemployed in STEM (NSF 23-315); and thus, millions remain missing from our Nation's STEM workplaces. This challenge may be even greater when other aspects of identity, such as gender, race, and ethnicity, intersect with disability, given the systemic and institutional inequities in the workplace (Hawley et al., 2014; Jetha et al., 2021).

There is ample evidence that the inclusion of persons with disabilities in the workforce stimulates innovation by contributing team members with problem-solving skills, flexibility, creativity, and a willingness to experiment (Lindsay et al., 2018; Scott et al., 2017). The benefits of hiring persons with disabilities includes improved profitability, a stronger competitive advantage, and an inclusive work culture (Jerdee, 2019; Lindsay et al., 2018). However, physical, technological, and socio-cultural barriers, as well as institutional policies and practices limit the diversity, equity, inclusion, and access of persons with disabilities in STEM and STEM education workplaces and training environments (Padkapayeva et al., 2017; Namboodiri et al., 2021). Advancing knowledge and finding solutions for inequitable policies, inaccessible training settings and workspaces, and less-than-inclusive STEM workplaces and educational training environments has the potential to increase the STEM employment of persons with disabilities, advance STEM discoveries and productivity, and contribute to the national economy.

II. PROGRAM DESCRIPTION

The goal of this solicitation is to support fundamental, applied, and translational research that advances knowledge about diverse, equitable, inclusive, and accessible STEM and STEM education workplaces and postsecondary training environments for persons with disabilities. Advancing research about access to postsecondary STEM and STEM education training sites and work environments has the long-term potential to increase the undergraduate and graduate STEM and STEM education degree completion rates of postsecondary students with disabilities, as well as the employment of persons with disabilities in STEM and STEM education workplaces. These eventual impacts will contribute to increasing diversity and employment opportunities for many of the "Missing Millions" in the STEM and STEM education workforce.

Project Design Components to Address Diversity, Equity, Inclusion, and Access for Persons with Disabilities in STEM and STEM Education

All research proposals must address key project design components: (1) The inclusion of researchers, experts, and organizations with authentic disability experiences; (2) The identification of disability type(s) to be investigated; (3) The specific STEM and/or STEM education workplaces and postsecondary training settings to be studied; (4) The use of theoretical and/or conceptual frameworks and robust research hypotheses, questions, designs, methodologies, data

analyses, and data interpretation; (5) A plan to assess the success of the project; and (6) A plan for the accessible dissemination of knowledge and practice outcomes to traditional and new audiences.

Authentic Leadership and Partnerships: Including researchers, experts, and organizations with authentic disability experiences is an essential project component. Researchers with disabilities who lead, or non-disabled researchers who partner with others with disabilities, offer the project a unique opportunity to integrate the perspectives, and the workplace and training experiences of persons with disabilities into the research design, implementation, and dissemination. When persons with disabilities are not included in designing the research, key questions and hypotheses may not be included in the project (Banas et al., 2019). Engaging these key constituents is critical to the success of research about diverse, equitable, inclusive, and accessible STEM and STEM education workplaces and training settings. The inclusion of project personnel with disabilities, such as staff, postdoctoral researchers, undergraduate and graduate students would also contribute authentic perspectives to the research project. If the project personnel do not include individuals with disabilities, then an advisory committee that includes persons with disabilities may also ensure that the voices of the community are informing the project activities.

Disability Types: The solicitation recognizes a wide range of disabilities including, but not limited to, deafness or hearing loss; blindness or visual impairment; physical, mental health, medical or other health-related disabilities; and neurodiverse or cognitive conditions such as dyslexia, autism spectrum disorders, learning disabilities, and others. Research is also welcome that focuses on multiple disabilities, such as persons with a medical disability who may also have limited mobility or other disabling conditions.

STEM and STEM Education Workplaces and Training Settings: These environments include any workplace or training setting where an adult with a disability is, or could be, employed, or might participate in undergraduate, graduate, postgraduate, pre-professional, or professional STEM and STEM education training, and/or participating in STEM research and/or STEM education activities. These settings include, but are not limited to, private, public, and government-funded research centers and laboratories, businesses and industries; field stations and remote sites; museums, zoological settings, and other informal learning environments; observatories, polar facilities, research aircraft, and sea-going vessels; federally recognized Tribal and Indigenous community facilities and environmental settings; pre-K-12 classrooms and learning environments; undergraduate, graduate, and postgraduate college and university classrooms, laboratories, and research facilities. Research incorporating multiple STEM and/or STEM education settings, including virtual environments is also welcome.

Theoretical and Conceptual Frameworks: Robust research hypotheses, questions, designs, methodologies, data analyses, and data interpretation plans must be based on defined theoretical and/or conceptual frameworks. The application of principles and research methods may also include those aligned with indigenous traditional ecological knowledge and community-based participatory research. The inclusion of an intersectional perspective, framework, or theoretical foundation, and other relevant theories integrated with critical disability theory, significantly strengthens the approach employed to design and conduct the proposed research. This solicitation strongly encourages the inclusion of universal design principles in the research plan, which increases the potential for the research and the outcomes to be accessible and inclusive for persons with disabilities.

Project Assessment and Evaluation: Proposals should include plans to assess the success of the project activities. The proposal should describe actions for soliciting and addressing external feedback (e.g., through internal and/or external advisory board(s), internal and/or external evaluation plan(s), and/or other evaluative mechanisms). A rationale for the proposed evaluation mechanism(s) should be provided, as well as a description about how assessment activities will be implemented and used to inform project modifications and improvements. Proposals should include an explanation and justification about how internal and/or external evaluation activities will ensure objectivity in the assessment processes.

Dissemination for Knowledge Advancement: It is critical that a strong dissemination plan address how the results, findings, outputs, and outcomes of the project work will advance knowledge and contribute to improved evidence-based practices and/or policies in STEM and STEM education workplace diversity, equity, inclusion, and accessibility. While the potential results of the proposed research are expected to be of sufficient significance to merit peer-reviewed publication, creative approaches to reach broader audiences are strongly encouraged. Proposals should identify the key elements of a communication plan (e.g., specific audiences and identification of the channels, media, and technologies appropriate for reaching these audiences). Dissemination should include mechanisms to bring findings to mainstream communities, be in accessible formats, and be in compliance with section 508 of the Rehabilitation Act of 1973 and 29 U.S. Code § 794 (d).

Research Themes to Address Diversity, Equity, Inclusion, and Accessibility in STEM and STEM Education Workplaces and Training Environments for Persons with Disabilities

Awards funded by this solicitation will contribute to advancing fundamental, applied, and translational research about diversity, equity, inclusion, and accessibility in STEM and STEM education workplaces and training settings for persons with disabilities. Three themes are provided for guidance and proposals must focus on one or more of these primary themes.

Theme 1: Studying the Barriers and Solutions to Diversity, Equity, Inclusion, and Accessibility in STEM and STEM Education Workplaces and Training Settings for Persons with Disabilities: Studying the physical, technological, virtual, socio-cultural, socio-economic, institutional, and systemic barriers that postsecondary students, graduate students, postdoctoral research scholars, and professionals with disabilities experience in STEM and STEM education workplaces and training settings, and the solutions needed for diversity, equity, inclusion, and accessibility in those environments.

Theme 2: Applying Intersectional Social Identity Perspectives to Investigate Characteristics and Conditions of STEM and STEM Education Workplaces and Training Settings for Persons with Disabilities: Applying an intersectional perspective to investigate how and why specific characteristics and conditions of STEM and STEM education workplaces and training environments limit and/or improve diversity, equity, inclusion, and accessibility for persons with disabilities who also identify as members of racial, ethnic, gender identity, sexual orientation, military/veteran, and other under-served, under-resourced and under-represented groups. Studying policies and practices that promote diversity, equity, inclusion, and accessibility in STEM and STEM education workplaces and training environments provides, from intersectional perspectives, provides greater opportunities for the translation of policies and practices across institutions, organizations, industries, and other workplaces and learning environments.

Theme 3: Conducting Use-Inspired and Solution-Oriented Translational Research about Diverse, Equitable, Inclusive, and Accessible STEM and STEM Education Workplaces and Training Settings for Persons with Disabilities: Researching the adaptation, adoption and/or translation of basic and fundamental research about diverse, equitable, inclusive, and accessible physical, technological, virtual, socio-cultural, and socio-economic characteristics, conditions, and solutions, and institutional policies, across STEM and STEM education workplaces and training settings for persons with disabilities.

Research Foci to Address Diversity, Equity, Inclusion, and Accessibility in STEM and STEM Education Workplaces and Training Environments for Persons with Disabilities

Projects will advance knowledge and practice by aligning with one of the primary research themes, and specific research foci may address any of the following topics, but are not limited to:

- Solutions and interventions that mitigate or eliminate one or more physical, technological, and/or virtual barrier(s) limiting STEM and STEM education work and training in specific workspaces and environments for persons with disabilities.

The socio-cultural factors adversely affecting the thoughts, attitudes, and behaviors of non-disabled, and disabled, individuals in STEM and STEM education workplaces and training settings, about persons with disabilities.
- Interventions to mitigate one or more socio-cultural factors negatively influencing and impacting the thoughts, attitudes, and behaviors of individuals in STEM and STEM education workplaces and training settings, about persons with disabilities.
- Institutional and organizational policies and/or practices that are implicitly and explicitly biasing persons with disabilities in STEM and STEM education workplaces and training settings.
- Policy and practice changes that mitigate or eliminate biases that limit persons with disabilities in STEM and STEM education workplaces and training settings.
- The physical, technological, and/or virtual barriers that limit STEM and STEM education work and training in specific workspaces and environments, and/or that restrict equipment and materials used in those contexts, for persons with disabilities.

Proposal Types

Research proposals: The amount of funding and duration requested in response to this solicitation should align with the maturity of the proposed work and the size and scope of the project activities. Research proposals may request a budget up to $1,500,000 and a duration up to five (5) years. All proposals should justify the requested level of funding and duration in the project description.

Synthesis Projects: These types of Research proposals must focus on advancing knowledge and findings on a research topic of critical importance to workplace equity for persons with disabilities in STEM and STEM education. They should strive both to present the state of the knowledge on an area, across disciplines where appropriate, as well as highlight issues for future research. Synthesis proposals should explain and justify the methodological approach, the steps for literature identification, the key decision points (e.g., identifying inclusion and exclusion criteria), and the systematic techniques to ensure all relevant research is included and that information is gathered accurately across studies. Proposals should place particular emphasis on the goals and outcomes of the synthesis and the dissemination plan. Synthesis project proposals may propose budgets up to $600,000 and project durations up to three (3) years.

Conference proposals: Conferences must be related to one or more of the solicitation's three (3) research themes. Activities are expected to generate resources and products usable by researchers. Conference proposals should aim to advance research agendas for professional communities and/or expand and disseminate knowledge about research methods, findings, and outcomes. For additional guidance about the preparation and submission of Conference proposals see PAPPG Chapter II.F.9.

EArly-concept Grants for Exploratory Research (EAGER): These proposals explore work in its early stages on untested but potentially transformative research ideas or approaches. EAGER projects must focus on one or more of the solicitation's three (3) research themes. A Concept Outline must be submitted by email to all the NSF program officers named in this solicitation and EAGER proposals may not be submitted unless an NSF program officer provides an email specifying that a proposal may be submitted. For additional guidance about the preparation and submission of EAGER proposals see PAPPG Chapter II.F.3.

Rapid Response Research (RAPID): These proposals are submitted when there is a severe urgency with regard to the availability of or access to data, facilities, or specialized equipment, including quick-response research on natural or anthropogenic and similar unanticipated occurrences. RAPID projects must also focus on one or more of the solicitation's three (3) research themes. A Concept Outline must be submitted by email to all the NSF program officers named in this solicitation and RAPID proposals may not be submitted unless an NSF program officer provides an email specifying that a proposal may be submitted. For additional guidance about the preparation and submission of RAPID proposals see PAPPG Chapter II.F.2.

Facilitation Awards for Scientists and Engineers with Disabilities (FASED): Facilitation award requests exist to reduce or remove barriers to participation in research and training by persons with physical disabilities by providing special equipment and assistance under awards made by NSF; and to encourage persons with disabilities to pursue careers in science and engineering by stimulating the development and demonstration of special equipment that facilitates their work performance. Persons with disabilities eligible for facilitation awards include PIs, other senior personnel, and graduate and undergraduate students. There is no separate program for funding of special equipment or assistance. Requests are made in conjunction with regular competitive proposals, or as a supplemental funding request to an existing NSF award. For specific FASED instructions for each type of request see PAPPG Chapter II.F.7.

About Other NSF Funding Opportunities

There are multiple NSF opportunities that offer funding for persons with disabilities to participate in STEM and STEM Education research, as well as funding for STEM and STEM education research about persons with disabilities:

- Disability and Rehabilitation Engineering (DARE)
- Rehabilitation Research at NSF
- NSF Convergence Accelerator - Track H: Enhancing Opportunities for Persons with Disabilities
- Dear Colleague Letter: Research to Improve STEM Teaching, Learning, and Workforce Development for Persons with Disabilities
- Dear Colleague Letter: Persons with Disabilities - STEM Engagement and Access

Visit the following website and/or search the NSF.gov website for additional information about funding opportunities:
https://www.nsf.gov/edu/PWDSEAPrograms.jsp

References

Banas, J., Magasi, S., The, K., & Victorson, D. (2019). Recruiting and Retaining People with Disabilities for Qualitative Health Research: Challenges and Solutions. *Health Sciences and Physical Education Faculty Publications*, 8, 1-25. https://neiudc.neiu.edu/hpera-pub/8

Hawley, C., McMahon, B., Cardoso, E., Fogg, N., Harrington, P., & Babir, L. (2014). College Graduation to Employment in STEM Careers: The Experience of New Graduates at the Intersection of Underrepresented Racial/Ethnic Minority Status and Disability. *Rehabilitation Research, Policy, and Education,* 28(3), 183-199. http://dx.doi.org/10.1891/2168-6653.28.3.183

Jerdee, C. (2019). What Companies Gain by Including Persons with Disabilities. Economic Progress, World Economic Forum. https://www.weforum.org/agenda/2019/04/what-companies-gain-including-persons-disabilities-inclusion/

Jetha, A., Gignac, M., Ibrahim, S., & Martin Ginis, K. (2021). Disability and Sex/Gender Intersections in Unmet Workplace Support Needs: Findings from a Large Canadian Survey of Workers. *American Journal of Industrial Medicine,* 64, 140-161. https://doi.org/10.1002/ajim.23203

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III. AWARD INFORMATION

Pending the availability of funds, it is estimated there will be 10-20 new Continuing Grants and/or Standard Grants awarded per year.

IV. ELIGIBILITY INFORMATION

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.
- Non-profit, non-academic organizations: Independent museums, observatories, research laboratories, professional societies and similar organizations located in the U.S. that are directly associated with educational or research activities.
- For-profit organizations: U.S.-based commercial organizations, including small businesses, with strong capabilities in scientific or engineering research or education and a passion for innovation.
- State and Local Governments: State educational offices or organizations and local school districts.
- Tribal Governments: The governing body of any Indian or Alaska Native tribe, band, nation, pueblo, village, or community that the Secretary of the Interior acknowledges to exist as an Indian tribe under the Federally Recognized Indian Tribe List Act of 1994 (25 U.S.C. 479a, et seq.)

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

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

There are no restrictions or limits.

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.

The following instructions are intended to supplement guidelines in the PAPPG and NSF Grants.gov Application Guide.

1. Cover Sheet: If human subjects will be involved in the research, the box on the cover sheet under HUMAN SUBJECTS should be checked. Proposers should refer to the NSF PAPPG for additional information related to Human Subjects research.

2. Project Summary: Each proposal must have a summary of the proposed project not more than one page in length. It should consist of three sections:

Overview: Proposals should provide a brief overview of the central research issue or purpose of the project. For Research and Synthesis Project proposals the proposing team should explicitly indicate which of the three research themes the project will target and summarize how the project will address each of the six project design components, as appropriate.

Intellectual Merit: The statement on intellectual merit should describe the potential of the proposed activity to advance knowledge. This section should include a summary of the proposed research goals, hypotheses, questions, designs, methodologies, data analyses, and data interpretation plan, as appropriate.

Broader Impacts: The statements on broader impacts should describe the potential of the proposed activity to benefit society and contribute to the achievement of specific, desired societal outcomes. This section should address how the project would provide positive outcomes for the individuals and communities engaged in the project. A very brief overview of the communication and dissemination plan should be provided as well.

3. Project Description

The Project Description should comply with PAPPG guidance, and therefore the narrative may not exceed 15 pages, including Results from Prior NSF Support, which is limited to 5 pages.

Proposers must attend to the following Project Description components:

The Project Description should begin with a brief 1-2 paragraph explanation of how the proposed project will advance knowledge, practice, and societal benefits. It must also identify and describe which of the three research themes will be addressed. This section must clearly state the goal(s) of the proposed research and the research question(s). A justification for the proposed project level and duration should also be provided.

Proposers should provide a 1-2 page review of the literature supporting the theoretical and practical constructs that form the foundation for the proposed research theme(s), goal(s), question(s), and hypotheses. The review must also support the rationale for investigating specific STEM and/or STEM education workplaces and/or undergraduate, graduate, and postgraduate training settings, and for the populations of people with disabilities and other identities to be studied. A description should be included summarizing the scholarly work that supports the project's plans to address each of the six project design components.

Much of the Project Description should describe the rigorous fundamental, applied, or translational research plan, with details provided about the research design and methods. The goal(s) and research question(s) proposed should drive the choice of the research design and methods. All types of quantitative, qualitative, or mixed-methods designs are welcomed with a description explaining the rationale for their proposed use.

Project Assessment and Evaluation: Proposals should include plans to assess the success of the project activities. The proposal should describe actions for soliciting and addressing external feedback (e.g., through internal and/or external advisory board(s), internal and/or external evaluation plan(s), and/or other evaluative mechanisms). A rationale for the evaluation mechanism(s) proposed to assess project success should be provided, as well as a description about how assessment activities will be implemented and used to inform project modifications and improvements. Proposals should include an explanation and justification about how internal and/or external evaluation mechanisms activities will ensure objectivity in the assessment processes.

Project Leadership and Management, and Organizational Resources: A brief description should be provided about which team members, and organizations, involved in the project have the necessary expertise and resources to conduct the research and to manage the award, as well the background to represent the authentic experiences of persons with disabilities. The inclusion of project personnel with disabilities, such as project leadership, staff, postdoctoral researchers, undergraduate and graduate students would contribute authentic perspectives to the research project. If the project personnel do not include individuals with disabilities, then an advisory committee that includes persons with disabilities may also ensure that the voices of the community are informing the project activities.

Dissemination and Communication Plan: Proposals should describe the key elements of a communication plan (e.g., specific audiences and identification of the channels, media, and technologies appropriate for reaching these audiences). Dissemination should include mechanisms to bring findings to mainstream communities, be in accessible formats, and be in compliance with section 508 of the Rehabilitation Act of 1973 and 29 U.S. Code § 794 (d). While the potential results of the proposed research are expected to be of sufficient significance to merit peer-reviewed and wide publication, creative approaches that reach broader audiences are strongly encouraged.

Results from Prior NSF Support: The Project Description must include a "Results of Prior NSF Support" section. It is not necessary, or preferred, that submitting teams have prior NSF support. However, if the PI or co-PIs have benefited from prior NSF support, it must be described. Describe results of prior NSF support for projects in which the PI or co-PI have been involved, such that reviewers can judge the quality and impact of that work. In cases where the PI or any co-PI has received more than one award, they need only report on the one award that is most closely related to the proposal. Refer to the PAPPG for specifics about what must be included. If the PI or co-PI(s) have not received prior NSF support, the heading "Results from prior NSF support" must still be included and should be followed with: "Not Applicable."

Broader Impacts: The Project Description must contain a separate section within the narrative labeled "Broader Impacts." Refer to the PAPPG for specifics about what must be included. This section should provide a discussion of the Broader Impacts of the proposed activities. Proposers may decide where to include this section within the Project Description, but it must be included, or the proposal may be returned without review. This section should specifically address how the project would provide positive outcomes for the individuals, communities, and workplace organizations that are the focus of the proposed work.

4. Budgets and Budget Justification: Proposal budgets and project durations should be determined by the scope of the activities and prepared in accordance with the guidance in the PAPPG and this solicitation. Budgets cannot exceed a maximum request for the proposal level identified in the Project Summary and Project Description, nor a project duration beyond the corresponding time limit associated with each project level. All proposals should include under Proposal Budget Line E (Travel) the costs to attend an annual two-day awardee meeting at, or near, NSF, i.e., in the Washington, DC vicinity. Travel for the meeting should be budgeted for the attendance of the PI and another project team member, as well as all undergraduate and graduate students, and postdoctoral research scholars working on the project.

5. **Special Information and Supplementary Documentation**

Note: Supplementary Documents are distinct from Appendices, as stipulated in the PAPPG: *Appendices may not be included* unless a formal deviation has been authorized by NSF. See PAPPG for more information about deviations.

Data Management Plan: Proposals are required to include a detailed two-page data management plan. Refer to the PAPPG for specifics about what must be included. Transparency requires that the Federal agencies share how they are maximizing outcomes of Federal STEM investments and activities and ensuring broad benefit to the public. Proposers are highly encouraged to review the EDU Directorate-specific data management plan guidance.

Postdoctoral Researcher Mentoring Plan (if applicable): Proposals are required to include a one-page mentoring plan when funding is requested for postdoctoral scholars in the proposal budget. Refer to the PAPPG for specifics about what must be included.

Letters of Collaboration: Letters of collaboration from project consultants, advisors, distributors, and organizational partners are encouraged. Such letters should follow the requirements for letters of collaboration given in the PAPPG. Letters of collaboration should be limited to stating the intent to collaborate and should not contain endorsements or evaluations of the proposed project. **Proposals with Letters of Support or Endorsement will be returned without review**.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

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

C. Due Dates

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

  September 19, 2023

  Third Tuesday in September, Annually Thereafter

  Research and Synthesis Project Proposal Submissions Must Adhere to this Deadline

- **Full Proposal Target Date(s)**:

  September 19, 2023

  Third Tuesday in September, Annually Thereafter

  Conference, EAGER, and RAPID Proposals are Accepted Before or After the Target Date. An EAGER or RAPID proposal may only be submitted after receipt of an NSF program officer concurrence email specifying that a proposal may be submitted.

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

There is additional review criterion for all Research proposals, including Synthesis Project proposals:

Reviewers will be asked to specifically evaluate how well the proposal addresses key project design components: (1) The inclusion of researchers, experts, and organizations with authentic disability experiences; (2) The identification of disability type(s) to be investigated; (3) The specific STEM and/or STEM education workplaces and postsecondary training settings to be studied; (4) The use of theoretical and/or conceptual frameworks and robust research hypotheses, questions, designs, methodologies, data analyses, and data interpretation; (5) A plan to assess the success of the project; and (6) A plan for the accessible dissemination of knowledge and practice outcomes to traditional and new audiences.

B. Review and Selection Process

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

All Research proposals, including Synthesis Project proposals, and Conference proposals greater than $100,000 will be reviewed ad hoc and/or by panel. Conference proposals up to $100,000, EAGER, RAPID, and FASED proposals will be reviewed internally.

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.

Special Award Conditions:

The grantee is required to share requested materials and data, as allowed by the policies of the institutions, organizations, or federally recognized Tribal and Indigenous communities, with an NSF funded resource hub and/or a third-party evaluator if and when requested to do so.

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:

- Christopher Atchison, Program Director, EDU/EES, telephone: (703) 292-2154, email: catchiso@nsf.gov
- Ronda J. Jenson, Program Director, EDU/EES, telephone: (703) 292-5028, email: rjenson@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.

Related Programs:

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 (FASED) 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: 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
Policy Office, Division of Institution and Award Support
Office of Budget, Finance, and Award Management
National Science Foundation
Alexandria, VA 22314