

NSF 25-535: Launching Early-Career Academic Pathways in the Mathematical and Physical Sciences

Program Solicitation

Document Information

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U.S. National Science Foundation

Directorate for Mathematical and Physical Sciences

Division of Astronomical Sciences

Division of Chemistry

Division of Materials Research

Division of Mathematical Sciences

Division of Physics

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

April 17, 2025

January 22, 2026

Fourth Thursday in January, Annually Thereafter



Table Of Contents

[Summary of Program Requirements](#)

[I. Introduction](#)

[II. Program Description](#)

[III. Award Information](#)

[IV. Eligibility Information](#)

[V. Proposal Preparation and Submission Instructions](#)

- A. Proposal Preparation Instructions
- B. Budgetary Information
- C. Due Dates
- D. Research.gov/Grants.gov Requirements
- VI. NSF Proposal Processing and Review Procedures
 - A. Merit Review Principles and Criteria
 - B. Review and Selection Process
- VII. Award Administration Information
 - A. Notification of the Award
 - B. Award Conditions
 - C. Reporting Requirements
- VIII. Agency Contacts
- IX. Other Information

Important Information And Revision Notes

Annual submission deadlines have been changed.

The program synopsis, project description, additional solicitation-specific criteria have been modified.

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:

Launching Early-Career Academic Pathways in the Mathematical and Physical Sciences (LEAPS-MPS)

Synopsis of Program:

The Launching of Early-Career Academic Pathways in the Mathematical and Physical Sciences (LEAPS-MPS) supports the launch of the careers of pre-tenure faculty whose research is in Mathematical and Physical Sciences (MPS) fields at institutions that do not traditionally receive significant amounts of MPS funding, such as Carnegie Research 2 (R2) universities, minority-serving institutions (MSIs), predominantly undergraduate institutions (PUIs).

The LEAPS awards enable PIs from these institutions to initiate productive research programs and generate results useful for preparing subsequent competitive proposals to "traditional" NSF funding opportunities, such as a core program or a CAREER solicitation. A critical goal of the LEAPS-MPS Program is to develop the 21st-century STEM workforce representative of society's full spectrum of talent by

increasing the participation in STEM research of members of communities underrepresented and/or under-served in STEM and the number of members of these communities who can serve as role models.

Awards are for 24 months with budgets of up to \$250,000 total costs (direct plus indirect).

Proposals in response to this solicitation must be submitted for consideration to the appropriate program in one of the five MPS Divisions.

Broadening Participation In STEM

NSF recognizes the unique lived experiences of individuals from communities that are underrepresented and/or under-served in science, technology, engineering, and mathematics (STEM) and the barriers to inclusion and access to STEM education and careers. NSF highly encourages the leadership, partnership, and contributions in all NSF opportunities of individuals who are members of such communities supported by NSF. This includes leading and designing STEM research and education proposals for funding; serving as peer reviewers, advisory committee members, and/or committee of visitor members; and serving as NSF leadership, program, and/or administrative staff. NSF also highly encourages demographically diverse institutions of higher education (IHEs) to lead, partner, and contribute to NSF opportunities on behalf of their research and education communities. NSF expects that all individuals, including those who are members of groups that are underrepresented and/or under-served in STEM, are treated equitably and inclusively in the Foundation's proposal and award process.

NSF encourages IHEs that enroll, educate, graduate, and employ individuals who are members of groups underrepresented and/or under-served in STEM education programs and careers to lead, partner, and contribute to NSF opportunities, including leading and designing STEM research and education proposals for funding. Such IHEs include, but may not be limited to, community colleges and two-year institutions, mission-based institutions such as Historically Black Colleges and Universities (HBCUs), Tribal Colleges and Universities (TCUs), women's colleges, and institutions that primarily serve persons with disabilities, as well as institutions defined by enrollment such as Predominantly Undergraduate Institutions (PUIs), Minority-Serving Institutions (MSIs), and Hispanic Serving Institutions (HSIs).

"Broadening participation in STEM" is the comprehensive phrase used by NSF to refer to the Foundation's goal of increasing the representation and diversity of individuals, organizations, and geographic regions that contribute to STEM teaching, research, and innovation. To broaden participation in STEM, it is necessary to address issues of equity, inclusion, and access in STEM education, training, and careers. Whereas all NSF programs might support broadening participation components, some programs primarily focus on supporting broadening participation research and projects. Examples can be found on the NSF [Broadening Participation in STEM](#) website.

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.

- Catalina Achim (OAD), telephone: (703) 292-2048, email: cachim@nsf.gov
- Simon C. Schuler (AST), telephone: (703) 292-8123, email: sschuler@nsf.gov
- Anne-Marie Schmoltner (CHE), telephone: (703) 292-4716, email: aschmolt@nsf.gov
- Nitsa Rosenzweig (DMR), telephone: (703) 292-7256, email: nirosenz@nsf.gov
- Tomek Bartoszynski (DMS), telephone: (703) 292-4885, email: tbartosz@nsf.gov
- Kathleen V. McCloud (PHY), telephone: (703) 292-8236, email: kmcccloud@nsf.gov

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

- 47.049 --- Mathematical and Physical Sciences

Award Information

Anticipated Type of Award: Standard Grant

Estimated Number of Awards: 45 to 75


Anticipated Funding Amount: \$11,000,000 to \$18,750,000

The budget and number of awards are subject to the availability of funds and receipt of competitive proposals.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- The proposal must be submitted by Institutions of Higher Education (IHEs) accredited in, and having a campus located in the U.S., that are not currently classified as a Doctoral University with "Very High Research Activity" (R1 institutions) according to the most recent Carnegie Classification: <https://carnegieclassifications.acenet.edu/> .

These include two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the U.S., acting on behalf of their faculty members. Eligibility is based on the classification on the date of proposal submission deadline.

Who May Serve as PI:

The Principal Investigator must fulfill these three conditions at the time of proposal submission:

- hold a doctoral degree in a discipline in which the Divisions of the Directorate for Mathematical and Physical Sciences support fundamental research
- be in the pre-tenure period of a tenure-track or tenure-track equivalent faculty appointment
- have not previously served as Principal or co-Principal Investigator on an NSF research award. For this solicitation, Fellowship, Conference/Workshop, Equipment, Travel, Instrumentation Infrastructure, and Research Opportunity Award (ROA) awards are not included in the research grant category

Tenure-track equivalency - For a position to be considered tenure-track-equivalent, it must simultaneously meet these three requirements: (1) the continuing appointment is expected to last at least three years from the start date of the LEAPS award; (2) the appointment comes with substantial research and educational responsibilities; and (3) the employee's career goals and job responsibilities as well as the mission of the department or organization will be served by the proposed LEAPS project.

Co-Principal Investigators are not permitted on LEAPS-MPS proposals.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

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

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. submitting organization's local time):

April 17, 2025

January 22, 2026

Fourth Thursday in January, 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:

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

Reporting Requirements:

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

I. Introduction

The Launching Early-Career Academic Pathways in the Mathematical and Physical Sciences (LEAPS-MPS) program supports PIs at institutions that do not traditionally receive significant amounts of MPS funding, such as R2, MSI, and PUI institutions. The program supports PIs who initiate competitive research programs and prepare students to enter the 21st-century STEM workforce, which represents the full spectrum of diverse talent that society offers, including underrepresented and under-served communities.

One critical objective of the LEAPS funding is to enable the PIs to initiate ambitious and productive research projects. The results of these projects can serve as a solid base for subsequent successful proposals to regular NSF funding opportunities, such as core NSF Programs, CAREER, and other program solicitations. This would increase the number and quality of proposals from Institutions that traditionally have not received as much federal support for research and the number of impactful awards to these Institutions. In line with the NSF's goal of increasing the representation and diversity of individuals, organizations, and geographic regions contributing to STEM teaching, research, and innovation, the LEAPS-MPS Program has the aim to increase the participation in STEM of members of communities underrepresented and/or under-served in STEM and the number of members of these communities who can serve as role models for the future scientific workforce.

II. Program Description

LEAPS-MPS awards support projects led by beginning investigators and focused on advances within or across research areas supported by the Divisions of Astronomical Sciences (AST), Chemistry (CHE), Materials Research (DMR), Mathematical Sciences (DMS), and Physics (PHY) in the MPS Directorate. The projects should form a sound basis for a compelling research program. The results of activities supported by LEAPS awards should increase the competitiveness of future proposals to NSF programs by the PIs; these could be, for example, data that can be used in the design of a future project and the formation of productive research collaborations or partnerships to support or increase the impact of educational efforts. Projects should also serve to increase the participation in STEM research of underrepresented and/or under-served communities in STEM and the number of members of these communities who can serve as role models to ensure that the 21st-century STEM workforce encompasses society's full spectrum of talent.

The LEAPS-MPS program does not support proposals more appropriate for consideration by NSF programs outside MPS or other federal agencies and will be returned without review. Potential proposers who are uncertain about the fit of a research project to an MPS division are strongly encouraged to contact the program officers identified below to discuss the fit.

III. Award Information


The awards can have budgets of up to \$250,000 in total (direct plus indirect) costs and a duration of up to two years.

MPS estimates an investment of up to \$18,750,000 in FY 2025. The actual program budget and the number of awards are subject to the availability of funds and receipt of competitive proposals.

IV. Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- The proposal must be submitted by Institutions of Higher Education (IHEs) accredited in, and having a campus located in the U.S., that are not currently classified as a Doctoral University with "Very High Research Activity" (R1 institutions) according to the most recent Carnegie Classification: <https://carnegieclassifications.acenet.edu/> .

These include two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the U.S., acting on behalf of their faculty members. Eligibility is based on the classification on the date of proposal submission deadline.

Who May Serve as PI:

The Principal Investigator must fulfill these three conditions at the time of proposal submission:

- hold a doctoral degree in a discipline in which the Divisions of the Directorate for Mathematical and Physical Sciences support fundamental research

- be in the pre-tenure period of a tenure-track or tenure-track equivalent faculty appointment
- have not previously served as Principal or co-Principal Investigator on an NSF research award. For this solicitation, Fellowship, Conference/Workshop, Equipment, Travel, Instrumentation Infrastructure, and Research Opportunity Award (ROA) awards are not included in the research grant category

Tenure-track equivalency - For a position to be considered tenure-track-equivalent, it must simultaneously meet these three requirements: (1) the continuing appointment is expected to last at least three years from the start date of the LEAPS award; (2) the appointment comes with substantial research and educational responsibilities; and (3) the employee's career goals and job responsibilities as well as the mission of the department or organization will be served by the proposed LEAPS project.

Co-Principal Investigators are not permitted on LEAPS-MPS proposals.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

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

Additional Eligibility Info:

PIs are advised that the NSF PAPPG (Chapters I.G and IV.B) prohibits submission of a proposal that is a duplicate of, or substantially similar to, a proposal already under consideration by NSF from the same submitter.

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.

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.

In the preparation of a proposal for this solicitation, note the following requirements:

Co-Principal Investigators are not permitted on LEAPS-MPS proposals.

Proposals must be submitted to the appropriate Division within the Directorate of Mathematical and Physical Sciences (MPS). In the proper Division, select one of these Programs:

- AST: Special Programs in Astronomy
- CHE: Broadening Participation
- DMR: XC-Crosscutting Activities Program
- DMS: Workforce in the Mathematical Sciences
- PHY: Integrative Activities in Physics.

The proposal title must begin with "LEAPS-MPS:" followed by a short and clear project title.

Project Description

Instructions for the Project Description provided in the NSF PAPPG must be followed. Additionally, the narrative should contain:

1. A description of the relationship between the proposed activities and the PI's long-term research goals.
2. A discussion of how the proposed activities will facilitate the development of a subsequent research proposal.
3. A plan for activities that could increase the participation in STEM of members of communities underrepresented and/or under-served in STEM and the number of members of these communities that can serve as role models for the future scientific workforce. Proposers must articulate the characteristics and needs of the population of students they are trying to serve and the rationale based on data or other evidence for the potential impact of the proposed activities on this population.
4. If the PI has received prior NSF support, the Results from Prior NSF Support section should be based on one NSF award with the largest research component most closely related to the proposed project.

Current and Pending (Other) Support section

According to the PAPPG, support from NSF and other agencies and foundations should be listed. For non-NSF awards and support, the PI should very briefly state the main goals of the supported work and whether the main scope is research, instrumentation, educational efforts, etc.

Special Information & Supplementary Documents

The following documents should be included:

1. A LEAPS-MPS Impact statement (no less than two (2) pages and not more than three (3) pages. The statement should provide information that will help a reviewer assess the potential of the proposed project to impact i) the institutional research environment, especially in terms of enhancing research capabilities, ii) the career of the PI, and iii) the ability of the PI's department to prepare students for entry into advanced-degree programs and/or careers in STEM, including any provisions for increasing the participation in such endeavors of members of communities underrepresented and under-served in STEM.
2. A signed letter from the Chair of the Department or Dean of the College. The letter should not endorse or evaluate the proposed project. It must include only the following information:
 - a. Address the PI's eligibility regarding early career status in a tenure-track or tenure-track equivalent position for the anticipated duration of a LEAPS award.
 - b. Include the following statement: "If the proposal submitted by Dr. [full name of the Principal Investigator] entitled [proposal title] is selected for funding by NSF, I, [full name and title of the letter writer], attest to the general support of the proposed activities and the availability of the resources detailed in the Project Description and the Facilities, Equipment and Other Resources sections of the proposal."

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

LEAPS-MPS awards are for up to \$250,000 in total (direct and indirect costs) for a period of up to 24 months.

The budget should include funds for the PI's travel to a one-and-a-half-day meeting of LEAPS award recipients in the Washington, DC, area.

C. Due Dates

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

April 17, 2025

January 22, 2026

Fourth Thursday in January, 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/ProposalPreparation

For Research.gov user support, call the Research.gov Help Desk at 1-800-381-1532 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/applicants>. 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.

The NSF [Grants.gov Proposal Processing in Research.gov informational page](#) provides submission guidance to applicants and links to helpful resources including the NSF [Grants.gov Application Guide](#), [Grants.gov Proposal Processing in Research.gov how-to guide](#), and [Grants.gov Submitted Proposals](#)

[Frequently Asked Questions](#). Grants.gov proposals must pass all NSF pre-check and post-check validations in order to be accepted by Research.gov at NSF.

When submitting via Grants.gov, NSF strongly recommends applicants initiate proposal submission at least five business days in advance of a deadline to allow adequate time to address NSF compliance errors and resubmissions by 5:00 p.m. submitting organization's local time on the deadline. Please note that some errors cannot be corrected in Grants.gov. Once a proposal passes pre-checks but fails any post-check, an applicant can only correct and submit the in-progress proposal in Research.gov.

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 acknowledgment 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 and Sharing Plan and the Mentoring Plan, as appropriate.

Additional Solicitation Specific Review Criteria

In addition to the standard NSF Intellectual Merit and Broader Impacts Criteria, reviewers will be asked to consider:

- a. The likely impact of the proposed project on the PI's long-term research goals and the institutional research environment, especially in terms of enhancing research capabilities,
- b. The plan for how the proposed activities will generate results that facilitate the development of a subsequent research proposal.
- c. The rationale for choosing the targeted student population and the quality and potential impact of the activities meant to prepare these students for 21st century STEM careers.

B. Review and Selection Process

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

Reviewers will be asked to evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will 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 proposers whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new recipients 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)*; 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 infrastructure

projects under 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:

LEAPS-MPS awards cannot be supplemented except in cases that address equity issues, such as Facilitation Awards Scientists and Engineers with Disabilities (FASSED) or Career-Life Balance (CLB) Supplemental Funding Requests.

If a PI plans to transfer to a new, eligible institution during the award period, the award may be transferred to the new institution only if the PI's new appointment continues to make them eligible for a LEAPS MPS award. The new Institution must submit a LEAPS Impact statement and a letter from the Department Chair or Dean of the College that satisfy the requirements set forth in this solicitation. If NSF determines that the appointment, the support for the project, or the potential impact on the Department do not satisfy the requirements set forth in the solicitation, the award must be relinquished.

Appointment of a substitute PI by the Institution is not permissible if the PI leaves the awarded organization.

In some situations where a PI is temporarily incapacitated and unable to continue the work (for instance, for health reasons), continued support of the graduate and postdoctoral students supported under the LEAPS project may be possible for a limited period.

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 annual project report, and a project outcomes report for the general public.

Failure to provide the required annual or final annual 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 annual 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.

The Accomplishments section of the Final Report should include this information:

- a. A description of how the funded activities contributed to an increase in the participation in research in STEM supported by MPS of society's full spectrum of diverse talent, including underrepresented and under-served communities.
- b. A description of how the results of the award will be used for the submission of a future NSF research proposal.

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:

- Catalina Achim (OAD), telephone: (703) 292-2048, email: cachim@nsf.gov
- Simon C. Schuler (AST), telephone: (703) 292-8123, email: sschuler@nsf.gov
- Anne-Marie Schmoltner (CHE), telephone: (703) 292-4716, email: aschmolt@nsf.gov
- Nitsa Rosenzweig (DMR), telephone: (703) 292-7256, email: nirosenz@nsf.gov
- Tomek Bartoszynski (DMS), telephone: (703) 292-4885, email: tbartosz@nsf.gov
- Kathleen V. McCloud (PHY), telephone: (703) 292-8236, email: kmcccloud@nsf.gov

For questions related to the use of NSF systems contact:

- NSF Help Desk: 1-800-381-1532
- 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 (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 proposers 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/recipients 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 proposers 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

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[Plain language](#) |



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