

NSF 24-578: Hispanic Serving Institutions: Equitable Transformation in STEM Education (ETSE)

Program Solicitation

Document Information

Document History

- **Posted:** May 24, 2024

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National Science Foundation

Directorate for STEM Education

Division of Equity for Excellence in STEM

Division of Undergraduate Education

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

September 11, 2024

August 27, 2025

Last Wednesday in August, Annually Thereafter



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The Hispanic Serving Institutions: Equitable Transformation in STEM Education (HSI: ETSE) solicitation is a part of the larger Improving Undergraduate STEM Education (IUSE): Hispanic Serving Institutions (HSI) program at NSF. The IUSE: HSI program funds a breadth of projects across HSIs. Prospective Principal Investigators (PIs) are encouraged to carefully review this solicitation and NSF [Hispanic-Serving Institutions: Enriching Learning, Programs and Student Experiences](#) (ELPSE) to determine which opportunity fits a particular proposal.

With this new Equitable Transformation in STEM Education (ETSE) competition, the HSI program is introducing two new tracks, (1) **Departmental/Division Transformation Track** which centers on the transformation of a single department or division within an institution; and (2) **Emerging Faculty Research** is a new track that invites proposals from individual investigators at 2- and 4-year Primarily Undergraduate Institutions (PUIs), including community colleges, to engage in STEM research, including undergraduate STEM education or STEM broadening participation research.

The HSI program team will host webinars in which key features and expectations of the HSI program will be discussed. Information regarding the webinars will be posted to the HSI program webpage for this solicitation.

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:

Hispanic Serving Institutions: Equitable Transformation in STEM Education (ETSE)

Synopsis of Program:

Hispanic Serving Institutions (HSI) are an important component of the nation's higher education ecosystem and play a critical role in realizing the [National Science Board Vision Report](#) for a more diverse and capable science and engineering workforce. Aligned with this vision and the [NSF Strategic Plan 2022-2026](#) the goals of the NSF HSI Program are to:

1. Enhance the quality of undergraduate science, technology, engineering, and mathematics (STEM) education at HSIs.
2. Increase the recruitment, retention, and graduation rates of students pursuing associate's or baccalaureate degrees in STEM at HSIs.

Meeting these goals requires institutions to understand and embrace their students' strengths, challenges, identities and lived experiences. This can happen in many ways and across many areas of an institution. As such, the IUSE: HSI program provides multiple opportunities to support an institution's goal to become more student centered, including the **Equitable Transformation in STEM Education (ETSE)** competition. This competition includes the following tracks:

- **Departmental/Division Transformation Track (DDTT)** - New
- **Institutional Transformation Track (ITT)**
- **Emerging Faculty Research Track (EFRT)** - New
- **HSI Program Resource Hubs (Hubs)**

This solicitation will also accept conference proposals and planning proposals, as defined by the [PAPPG](#).

The ETSE competition focuses on (1) institutional transformation projects that support HSIs in their effort to achieve equity in STEM education, and (2) the infrastructure—the HSI-Net network of resource hubs—which supports the overall program goals.

Institutions are encouraged to consider how their HSI designation, and their organizational mission align to better support STEM success of all students. The ETSE competition welcomes proposals that look to implement and evaluate promising practices and/or conduct research related to broadening participation or improving recruitment, retention, graduation, and other successful outcomes in STEM undergraduate education.

The ETSE solicitation supports projects designed to catalyze change and help HSIs meet students where they are, accounting for their assets and the challenges they may face. Identities and experiences are not determined solely by membership in a single monolithic population of students (e.g., Hispanic, first-generation, commuter, etc.). Consequently, institutions are expected to use institutional data to identify equity gaps, identify areas of need, and unpack the factors that shape students' individual identities and shared experiences. The perspectives gained from this data should be central to the design of the proposed project.

Please see below for specific information about each track. While proposals are focused on mechanisms for transforming undergraduate STEM education, projects should also consider student voices and include mechanisms to aggregate and analyze existing student feedback and collect quantitative and qualitative student data throughout the life of the proposed project.

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.

- Sonja Montas-Hunter, telephone: (703) 292-7404, email: smontash@nsf.gov
- Michael J. Ferrara, telephone: (703) 292-2635, email: mferrara@nsf.gov
- Josephine J. Rodriguez, telephone: (703) 292-2986, email: jrodrigu@nsf.gov
- Robert Talbot, telephone: (703) 292-7165, email: rtalbot@nsf.gov

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

- 47.076 --- STEM Education

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 11 to 17

This Program anticipates making:

- 3-6 Departmental/Division Transformation Track (DDTT)
 - Award Size: Up to \$1,000,000
 - Award Length: For up to five-year-long projects
- 2-3 Institutional Transformation Track (ITT)
 - Award Size: Up to \$3,000,000
 - Award Length: For five-year-long projects
- 5-7 Emerging Faculty Research Tracks (EFRT)
 - Award Size: Up to \$200,000
 - Award Length: For up to three-year-long projects
- 1 HSI Program Resource Hubs (Hubs)
 - Award Size: Up to \$3,000,000
 - Award Length: For up to five-year-long projects

Anticipated Funding Amount: \$20,000,000

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

Anticipated Funding Amount: \$20,000,000

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- With the exception of conference proposals, proposals may only be submitted by the following:

To be eligible for funding an institution must meet the following criteria:

1. Be an accredited institution of higher education.
2. Offer Undergraduate STEM educational programs that result in certificates or degrees.
3. Satisfy the definition of an HSI as specified in section 502 of the Higher Education Act of 1965 (20 U.S.C. 1101a) [and meet the eligibility of an HSI by the U.S. Department of Education](#) definition. Documentation (eligibility letter) from the Department of Education confirming HSI designation must be submitted as a supplemental document.

Additional requirements to be eligible for funding in the **Emerging Faculty Research Track (EFRT)**, the institution must meet the four criteria listed above at the time of submission and:

1. Be an eligible Primarily Undergraduate Institution (PUI) [1]. Eligible PUIs are accredited colleges and universities (including two-year community colleges) that award Associate's degrees, Bachelor's degrees, and/or Master's degrees in NSF-supported fields, but have awarded 20 or fewer Ph.D./D.Sc.. degrees in all NSF-supported fields during the combined previous two academic years.

Who May Serve as PI:

ITT proposals require an upper-level administrator with decision-making authority (i.e. Dean or higher) as PI or co-PI.

For DDTT proposals, the unit head, chair, or equivalent should be a PI or co-PI for the duration of the project.

No restrictions for Hub and EFRT proposals.

Limit on Number of Proposals per Organization:

DDTT proposals: Eligible institutions with an active Track 3: Institutional Transformation project (ITP) award from [NSF 22-611](#), [NSF 22-545](#), or [NSF 20-599](#) or an active ITT award from this solicitation must describe how the proposed DDTT project is compatible with the efforts being undertaken by the active award.

ITT proposals: Eligible institutions may submit one proposal and may not have an active Track 3 Institutional Transformation Project (ITP) award from, [NSF 22-611](#), [NSF 22-545](#), or [NSF 20-599](#). Institutions with an active DDTT award from this solicitation must describe how the proposed ITT project is compatible with the departmental/divisional transformation effort being undertaken by the active award.

EFRT and Hub proposals: No Restrictions

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

For DDTT, ITT and EFRT, an individual may be listed as PI or co-PI on only one proposal.

An individual may only serve as a PI or co-PI on one Hub proposal or active Hub project at any time.

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):

September 11, 2024

August 27, 2025

Last Wednesday in August, 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:

Standard NSF reporting requirements apply.

I. Introduction

The National Science Foundation's Improving Undergraduate STEM Education: Hispanic Serving Institutions (HSI) Program is part of a Foundation-wide effort to accelerate improvements in the quality and effectiveness of undergraduate education in all STEM fields including the learning, social, behavioral, and economic sciences. As its name implies, the HSI program specifically supports initiatives to (1) enhance the quality of undergraduate science, technology, engineering, and mathematics (STEM) education and (2) increase the recruitment, retention, and graduation rates of students pursuing associate's or baccalaureate degrees in STEM at colleges that have been designated as [Hispanic Serving Institutions](#) (HSIs). To achieve these goals and with [Congressional support](#), the HSI program aims to build capacity at Hispanic-serving institutions. Building organizational capacity, as encouraged by the explanatory statement of the Consolidated Appropriations Act, 2017 Public Law 115-31, is concerned with creating and implementing flexible systems that support new and old ideas. Building capacity should involve developing structures that foster student and/or faculty growth while meeting the students where they are in their college careers academically, financially, and socially. Institutional structures may also include sociocultural supports and collaborative processes that promote effective learning environments and inclusiveness as well as mechanisms to support students' personal development and professional learning.

To accomplish these goals, the IUSE HSI program runs multiple competitions annually. One of these is a competition for the **Equitable Transformation in STEM Education (ETSE)**. Recognizing the diverse nature and context of HSIs, ETSE is designed to support HSIs with varying structures and diverse student populations, including newly designated HSIs, to engage in organizational change efforts to support equitable learning outcomes for all its students.

NSF HSI program seeks to improve efforts aimed at enhancing the preparation, participation, and contributions of groups that have been historically excluded and/or underserved in the STEM enterprise. As such, proposers are encouraged to use an intersectional lens^[2] perspective in designing proposals across all tracks in the HSI program. Intersectionality is an approach that considers the interconnectedness of overlapping social identities and can help shape a project's design and conceptualization of inclusivity to better serve students at HSIs. An intersectional approach to institutional transformation in a student-centered learning environment could significantly support the ability to leverage the full spectrum of diverse

talent that society has to offer which helps to increase the diversity of undergraduate STEM degrees awarded and STEM professionals across the nation.

The Equitable Transformation in STEM Education (ETSE) solicitation accepts proposals in four tracks. Additional opportunities for planning and conference proposals are also discussed below.

1. **Departmental/Division Transformation Track (DDTT):** This new track focuses on strengthening STEM education through the transformation of academic departments or divisions which are in turn shaped by the personnel, leadership, practices, and disciplinary culture of these distinct and often interconnected units. These projects should provide opportunities for departments and divisions to scrutinize their policies and practices, invest in current and future leaders, and challenge narrow or exclusionary disciplinary norms that can sustainably drive positive student outcomes.
2. **Institutional Transformation Track (ITT):** The Institutional Transformation track should articulate a vision for unifying academic equity research, practice, and policy to strengthen an institutional understanding of student learning outcomes from the context of the diverse community it serves. These projects seek to 1) support the planning and implementation of institutional research infrastructure efforts which results in institution-wide efforts toward broadening participation in STEM and 2) engage students in STEM undergraduate best practices and effectively guide students toward careers in STEM and/or graduate programs.
3. **Emerging Faculty Research Track (EFRT):** The EFRT track is a new track that invites proposals from individual investigators at 2- and 4-year PUIs, including community colleges, to engage in STEM research, including undergraduate STEM education or STEM broadening participation research. The specific objectives of EFRT projects should (1) enhance faculty opportunities at PUIs and two-year colleges to conduct STEM Research, STEM education research and/or Broadening Participation research and (2) improve understanding of factors that advance positive student learning outcomes and effective STEM broadening participation efforts.
4. **HSI Program Resource Hubs (HSI Hubs):** Hub projects should be designed to promote research and support collaboration within the HSI community, including prospective PIs, to build capacity at HSIs. The HSI-Hubs will support initiatives and activities that address any area(s) of need in the HSI community, identified by the proposer and community, and supported by evidence. These should be designed to effectively serve the HSI STEM communities and increase the participation of the full spectrum of diverse talent to include historically underrepresented individuals/communities in STEM.

The ETSE Competition also accepts planning proposals for Departmental/Division Transformation and Institutional Transformation tracks. Please review PAPPG guidelines on how to submit a planning proposal.

II. Program Description

The HSI program is guided by student-centered frameworks that build an intentional and supportive environment for students and reinforce cultural and mindset shifts that support the success of all students at HSIs. Proposals should discuss project designs that are based on data-informed decision-making processes to operationalize an institution's student-centered approach.

This competition is designed to leverage existing institutional strengths for advancing efforts toward student-centered environments^[3]. Proposals to ETSE should impact the STEM learning landscape, result in equitable undergraduate STEM degree attainment for all students, and position students for successful transition and retention into the STEM workforce or graduate education.

Competition Tracks

This competition accepts proposals for four project tracks. Additional opportunities for planning and conference proposals are discussed later in the document.

Departmental/Division Transformation Track (DDTT). The Departmental/Division Transformation Track is new to the HSI program and focuses on supporting transformation through building STEM research capacity and infrastructure at the departmental, divisional- or college level. It is intended to provide opportunities for an end-to-end self-study of a


discipline(s)'s culture, students' experiences, and more granular academic outcomes. Proposals should prioritize "building people capacity" as a foundational element for institutional transformation and consider the collective needs of all stakeholders.

These projects should: (1) strengthen academic capacities, including investing in STEM leaders at the college, departmental, or division level; (2) develop and enhance sociocultural academic support to broaden participation in STEM education; (3) support the design and implementation of an organizational self-assessment to collect and analyze data to identify STEM inequities in a specific discipline or connected disciplines in a department, unit or college; and (4) develop a project design that takes into consideration a student-centered framework, such as "Servingsness,[4]" "Intersectionality" or "Growth-Mindset[5]" to promote a learning environment that intentionally positions the student at the center of the academic experience to ensure that all students have meaningful opportunities to realize their fullest potential and as a result, strengthens the ability of academic programs to attract, retain, and graduate students in the STEM disciplines of focus.

The specific objectives of DDTT projects must: (1) increase student engagement in evidence-based practices that result in positive STEM student learning outcomes; and (2) develop and engage all members of the focal academic department or division, as well as administrators, staff, and both full-time and part-time faculty as appropriate.

The unit head, chair, or equivalent must be a PI or co-PI for the duration of the project, and the role of this individual should be central to the proposed project and clearly described in the project narrative. Proposals are also encouraged to devote funds towards a project coordinator who can help support data collection and analysis, organize project activities, and attend to the multifaceted requirements for STEM transformation.

An emphasis of this track is to also enable institutions with limited or no research capacity, including PUIs, two-year institutions, including community colleges, to expand and build STEM capacity. Proposals from PUIs and community colleges are encouraged to propose meaningful partnerships with external organizations to grow programs in workforce development, research and development (R&D), and/or the translation of research to practice in emerging technology fields.

Institutions whose goal is to advance from one research classification to another (e.g., achieving [R2 Carnegie classification](#) ) are also encouraged to submit to this track.

The project description for successful proposals to the DDTT are strongly encouraged to:

- Establish a direct connection to the long-term strategic plan of the host department(s).
- Discuss the adaptation/replication of known evidence-based strategies and/or design and implementation of new strategies that will impact the STEM discipline(s) that are the focus of the project. The approaches taken to improve undergraduate STEM education should clearly align with the data narrative and baseline data should inform the development of clear goals highlighting how the proposed change effort might close equity gaps or otherwise measurably improve student engagement, experiences, and outcomes.
- Include formal and informal leadership development activities for individuals across the unit (e.g., faculty, unit chairs or heads, staff members, leads for multi-section courses). Projects are encouraged to consider how the unit will identify and prepare future leaders and how equitable, engaged mentoring, advising, and other practices can serve as loci of leadership development and drivers of positive change.
- Discuss a plan for the assessment of division/department-level and institutional factors, including how the institutional designation as an HSI intertwines with its climate, culture, practices, and outcomes. Proposals are encouraged to leverage qualitative and quantitative data streams spanning all stakeholders as institutional research data alone cannot fully capture the breadth of the students' lived experiences within an institution.

The inclusion of student voice and feedback is critical to DDTT, and proposals must include mechanisms to aggregate and analyze existing student feedback and collect quantitative and qualitative student data throughout the life of the proposed project. Proposals are encouraged to include student members as part of the project leadership team or advisory boards to serve as liaisons with their peers and ensure that their viewpoints are clear and understood. Student leaders should be appropriately compensated for their time and effort.

Institutional Transformation Track (ITT). Proposals to the Institutional Transformation track should articulate a vision for unifying academic equity research, practice, and policy to strengthen an institutional understanding of student learning outcomes from the context of the diverse community it serves. All institution types are encouraged to apply, especially PUIs (including community colleges). Proposals are encouraged to consider moving efforts from enrollment-driven strategies to student-centered principles. These projects seek to support the planning and implementation of institutional research infrastructure efforts which results in institutional-wide efforts toward broadening participation in STEM while engaging students in STEM undergraduate best practices to effectively guide students toward careers in STEM and/or graduate programs.

While ITT proposals do not need to carry out the proposed activities in all STEM disciplines at the institution, a substantial subset of those disciplines should be integrated into the transformation effort across the proposed project period. This should go substantively beyond an effort to transform undergraduate STEM education within a single department, division, school, or college. Furthermore, the sustainability plan presented should clearly discuss how the institution will implement successful practices into departments and disciplines that are not fully engaged in the proposed work during the project period.

ITT proposals should incorporate a theory of change that informs the overall project design and should further be grounded in STEM education research and broadening participation research to enhance student outcomes in STEM. The project design should lead to institutional infrastructure and policy changes to support long-term institutional changes that encourage and support faculty to implement evidence-based practices that enhance student outcomes in STEM.

ITT projects may include a plan to conduct research that advances understanding of institutional culture and identity on students' learning outcomes in undergraduate STEM education. Such research should result in a strategic understanding of the complex characteristics of students at HSIs and how multi-faceted strategies work synchronously to advance equity in STEM education. This may be achieved through posing one or more research questions that will be answered through the course of the study or through evaluation of project activities, impacts, or outcomes. Projects should include a well-designed plan to gather data and should specify methods of analysis that will be employed to address questions posed and mechanisms to evaluate the success of the project. Projects should also specify strategies for generating and using formative and summative assessments of project processes, outputs, and/or outcomes. Proposals that include a research plan must include a plan that discusses dissemination and must also discuss how the research will generate knowledge to make an impact on how HSIs can transform STEM education.

Project Descriptions for successful proposals to the Institutional Transformation Track (ITT) are strongly encouraged to:

- Discuss the proposal's alignment with the institutional strategic plan to improve the enrollment, retention, and graduation of STEM associates and baccalaureate degrees.
- Discuss how the proposed ITT project will leverage and/or complement existing programs and initiatives to help the institution move towards a more student-centered undergraduate STEM ecosystem.
- Articulate the creation of institution-wide strategies to transform their policies or practices to foster inclusive STEM learning environments that promote equitable student learning and engagement in all STEM disciplines at the proposing HSI.
- Comprise a multidisciplinary team with the expertise and experience needed to implement the proposed project. The PI team may have members from other institutions or non-profit organizations to augment the team's expertise, which should be explained in the project description and management plan. (For more information on the project management plan see required components for all proposals in the Proposal Preparation section of the Competition.) The project team should include an upper-level administrator with institution-wide responsibility and authority over STEM education at the institution (i.e. Provost, VP of Academic Affairs or equivalent).
- Provide evidence of institutional commitment to the proposed work as part of the proposal.

Proposers should be aware that ITT projects will be formally reviewed via a formal Reverse Site Visit prior to the conclusion of the project's third year. If necessary, this may be followed by a formal site visit. Continued funding of ITT project will be contingent on the results of the reverse site visit and/or site visit review.

Common Expectations for proposals to DDTT and ITT Tracks

The sections must be included in the project description:

- An **institutional data narrative** to determine baselines, set goals, and evaluate impact. The institutional data should contextualize the institution's need and ability to provide undergraduate STEM education promoting a more competitive, diverse, and capable STEM workforce. The institutional data narrative should serve as a foundation for the adoption of an intersectional lens to the project design.
- A discussion on how the **project design applies an intersectional lens** that supports the context from which the institution proposes to address academic equity gaps in STEM. Intersectional perspectives are important for identifying academic equity challenges and solutions for underrepresented populations in STEM. Intersectional perspectives are also important for identifying factors that need attention to effectively support those populations whose social identities, in addition to gender, race, and ethnicity, such as age, disability; economic status (e.g., Pell recipients), and first-generation status impact the learning environment. As a result, an intersectional lens provides an opportunity to intentionally engage in strategies that leverage the full spectrum of diverse talent.
- A discussion on a theory of change^[6] that supports the project in taking actionable steps to transform policies, practices, relationships, approaches, and/or mindsets, to make the STEM environment more inclusive, advance equity, and broadening participation in STEM at HSIs.
- A project **evaluation plan** that is based on [S.M.A.R.T. \(Specific, Measurable, Attainable, Realistic, and Time-bound\) goals](#). Evaluation plans should include a logic model as a supplementary document. In addition to quantitative and/or qualitative methodologies, it is encouraged that evaluation plans include measures of success for non-academic outcomes (i.e. STEM identity, academic self-concept, graduate aspirations). Project evaluator(s) should be independent to the project and named in the Project Description section of the proposal. Proposals should: (1) describe the expertise of the evaluator(s); (2) explain how that expertise relates to the goals and objectives of the proposal; and (3) specify how the PI will report and use the results of the project's external review process and incorporate the recommendations to improve the project. The biosketch(es) of the external evaluator(s) should be uploaded as a supplementary document.
- Describe a **dissemination plan** that includes activities beyond conferences and journal articles to reach interested disciplinary communities, leaders, and scholars. While conferences and journals may be an integral part of a dissemination plan, PIs should consider how they will assemble and reach an audience that could benefit from their project's findings.
- Describe a **sustainability plan** that demonstrates how activities and practices are being integrated into an institution's overall undergraduate STEM culture and are transforming how institutions support and develop activities for enrollment in, and completion of a STEM degree. Proposals should include preliminary sustainability plans for the continuation of a project's goals and efforts to achieve desired outcomes beyond the funding period.
- If hiring undergraduate students, a student mentoring plan is required. This solicitation specific required plan is separate and distinct from the mentoring plan required by the PAPPG of proposals that request funding to support postdoctoral scholars or graduate students and should be included as a supplementary document.
- Include a discussion that outlines a strategy for **leveraging previous awards from the HSI program** from [NSF 22-611](#), [NSF 22-545](#), or [NSF 20-599](#), if applicable.

Emerging Faculty Research Track (EFRT). The EFRT track is a new track that invites proposals from individual investigators at two-year institutions, including community colleges and primarily undergraduate institutions (PUIs) to engage in STEM research, including undergraduate STEM education Research or STEM broadening participation research. Proposals from individuals looking to develop a new scholarly program or have an established record of scholarship in these areas are equally welcome.

Awards through this track are intended to strengthen the community of teacher-scholars at these institutions, allow investigators to strengthen existing scholarly endeavors or explore new opportunities, have a positive impact on faculty and student development, and/or develop inclusive environments in STEM.

EFRT projects are expected to increase research activity at primarily undergraduate institutions, including community colleges. As result, EFRT projects should increase knowledge about effective STEM education practices on engaged student learning and broadening participation at HSIs. The specific objectives of proposed EFRT projects should (1) improve understanding of what leads to positive student learning outcomes and effective broadening participation efforts and (2) strengthen the community of undergraduate STEM education or broadening participation researchers at PUIs and two-year colleges.

Proposals to EFRT will support single-investigators' research in all disciplines supported by NSF. These include: (1) theoretical or applied STEM research that is inter-, multi-, or trans-disciplinary, (2) discipline-based STEM education research, and/or (3) STEM broadening participation research. Regardless of focus, research should support the overarching goals of the HSI program which seeks to improve and enhance undergraduate STEM education, including undergraduate student research experiences. Proposals should discuss alignment with the long-term plans of the investigator's department, division, school/college, or institution. This includes the institutional mission and plans for expanding institutional research capacity and increasing the production of STEM baccalaureate degrees.

Engaging undergraduate researchers in authentic research experiences is an established high-impact practice. Proposals that include opportunities for undergraduates in any NSF-supported discipline to engage in STEM research, including the core education or broadening participation research are encouraged. Proposals which include the support the success of students who have historically not engaged in STEM undergraduate research activities and are impacted by academic inequities are strongly encouraged. Projects that involve undergraduates should include a specific discussion of students' roles, duties, and training. Proposals should also address the PI's readiness to engage in supporting undergraduate research and mentoring students of diverse backgrounds. Please note that a student mentoring plan should also be submitted as a supplementary document for any project that involves undergraduates involved in roles other than as study participants.

Interdisciplinary research projects and projects focused on training students in emerging technologies or areas of national interest (i.e. artificial intelligence, environmental change, quantum information systems, advanced manufacturing, etc.), as outlined in the [NSF Strategic Plan 2022-2026](#), are strongly encouraged.

The Project Description for each EFRT proposal must contain the following elements:

- An overview of the PIs overall research, education, and professional goals.
- Background and justification for proposed research, supported by the relevant literature, along with appropriate research questions and hypotheses. Theoretical or conceptual frameworks should be incorporated as appropriate for the specific nature of the proposed study.
- Information on how the proposed research will contribute to the literature on how to effectively impact broadening participation in STEM and/or advance STEM education research at HSIs.
- A discussion of data streams, sampling methods, and methodologies to be employed. Proposals that include the development or adaptation of surveys, rubrics, or other data collection tools should also include a clear plan for validating those items. Please note that the EFRT track does not favor any particular approach, method, or type of data, but rather asks proposers to carefully consider which approaches would be best suited to address the issues and research questions presented.
- A detailed timeline that clearly presents data collection points and timeframes for analysis, and other key research activities.
- A plan for how the progress of the project will be assessed. Proposals from investigators new to STEM education or broadening participation research are encouraged to include an advisory board or formal, experienced mentor to guide their scholarly journey throughout the project.
- A plan for dissemination of project outcomes.
- A letter of commitment from the PI's Department Chair or Dean stating that the PI will have institutional support in terms of allowance to utilize project funds for release time, travel for research purposes, or access to existing research facilities, as appropriate. This should be included as a supplementary document.

Budget: Funds requested for EFRT proposals are intended to support investigators' specific needs and may include, but are not limited to the following: faculty release time; technical support for research; faculty and student professional development; travel to conferences; acquisition or upgrading of research equipment; development of special topics or seminar courses; and collaborative research efforts including travel to collaborating institutions or travel for collaborators to visit the PI at their home institution. The budget may include support for student trainees or post-doctoral fellows. EFRT proposals can be used to support sabbatical activities, including providing salary supplements in cases where the proposing institution does not provide full salary support.

HSI Program Resource Hubs (HSI-Hubs). Through the ETSE competition the HSI program will continue to support the HSI Hubs, as part of the HSI-Net infrastructure. HSI-Hubs will provide support for specific areas of need and of importance to the HSI community and will serve the HSI community at large, and its stakeholders, including current and potential HSI awardees. The Hub proposal may focus on one or several critical aspects of HSIs such as institutional transformation, capacity building for specific institution types or specific disciplines, and research on broadening participation that may effectively impact STEM degree production.

Possible topics may include institutional transformation, capacity building at HSIs, STEM leadership development of all faculty to include scholars from historically underrepresented groups, research and dissemination, intersectionality and partnerships, effective frameworks designed for HSI; or any other area critical to the HSI community that supports the goals and strategies of the HSI program. This listing of possible thematic areas is not meant to be exclusive. Rather, NSF expects prospective PIs to define the need, cite evidence establishing the needs at HSIs, and offer a clear recommended plan with activities and measurable objectives and solutions. PIs are encouraged to put forward critical areas and ideas that are important to the HSI community and its unique and diverse ecosystem. All HSI- Hubs must propose and budget for activities related to the hub's critical areas.

The project description must:

- Provide a description for the development and implementation of a resource hub that would provide services, resources, and/or knowledge generation pertaining to specific areas of need in the HSI community.
- Articulate a discussion on how the hub identifies, develops, and promotes promising innovative research or initiatives and successful practices and frameworks that generate valuable new knowledge and systemic change for STEM education at HSIs.
- Develop a plan to provide intellectual infrastructure for collaborations with the potential to expand the knowledge base about HSIs.
- Discuss mechanisms for the dissemination of successful practices at HSIs, the context in which they work, and research results.
- Include a discussion to ensure that the HSI-Hub's activities are inclusive of the broad collection of institutions within the HSI typology (which includes 2-year colleges, rural colleges, PUIs, comprehensive public institutions, universities in Puerto Rico, private institutions, and research-intensive universities).
- Include a timeline of when activities would occur and who is responsible for key activities.
- Describe a sustainability plan that demonstrates the continuation of the Hub's goals and efforts to achieve desired outcomes beyond the funding period.
- Include a project evaluation plan that is based on S.M.A.R.T. (Specific, Measurable, Attainable, Realistic, and Time-bound) goals. Evaluation plans should include a logic model as a supplementary document. In addition to quantitative and/or qualitative methodologies, it is encouraged that evaluation plans include measures of success for non-academic outcomes (i.e. STEM identity, academic self-concept, graduate aspirations).

It should also include a strategy to adapt successful existing frameworks for effectively diversifying the STEM enterprise and for student success at HSIs.

Proposers should be aware that Hub projects may be formally reviewed by NSF via a Site Visit or Reverse Site Visit during their second year to determine whether satisfactory progress has been made. Continued funding contingent on the result of the second-year review.

Additional Opportunities

Planning Proposals. The ETSE competition welcomes planning proposals for DDTT and ITT to develop, organize, and/or strengthen key data, human, and educational resources. Proposers should refer to [Chapter II.F.1 of the NSF PAPPG](#) for specific budget and proposal preparation guidelines relating to planning proposals and should note the target dates provided for this mechanism. As detailed in the PAPPG, PIs must contact a program director on the ETSE Competition to discuss their proposal idea and determine if a planning grant is appropriate. Furthermore, written permission to submit a planning proposal must be obtained from an HSI program director and uploaded at the time of submission.

Planning proposals can focus on the development of a future submission to the DDTT or ITT tracks. Examples of planning proposals include, but are not limited to the following:

- Identifying or developing models, frameworks, research or evaluation designs central to the development of a strong future submission to the DDTT or ITT Tracks.
- Developing or revising strategic plans for STEM education that leverage student-centered frameworks and practices.
- Strengthening collaborations among faculty, administration, and staff in STEM departments, divisions, schools, colleges.
- Strengthening collaborations among institutions of higher education, including two-year colleges and rural institutions.
- Establishing partnerships with industry and/or community organizations.
- Piloting systems and approaches to collect, organize, and analyze student data.

Workshops and Conferences. Proposals for workshops and conferences addressing topics that contribute to the goals of the HSI Program may be submitted at any time following consultation with an HSI Program Officer. Proposals for conferences addressing critical challenges in undergraduate STEM education and broadening STEM participation at HSIs may be submitted at any time following consultation with an HSI program officer.

III. Award Information

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds.

IV. Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- With the exception of conference proposals, proposals may only be submitted by the following:

To be eligible for funding an institution must meet the following criteria:

1. Be an accredited institution of higher education.
2. Offer Undergraduate STEM educational programs that result in certificates or degrees.
3. Satisfy the definition of an HSI as specified in section 502 of the Higher Education Act of 1965 (20 U.S.C. 1101a) [and meet the eligibility of an HSI by the U.S. Department of Education](#) definition. Documentation (eligibility letter) from the Department of Education confirming HSI designation must be submitted as a supplemental document.

Additional requirements to be eligible for funding in the **Emerging Faculty Research Track (EFRT)**, the institution must meet the four criteria listed above at the time of submission and:

1. Be an eligible Primarily Undergraduate Institution (PUI)[1] . Eligible PUIs are accredited colleges and universities (including two-year community colleges) that award Associate's degrees, Bachelor's degrees, and/or Master's degrees in NSF-supported fields, but have awarded 20 or fewer Ph.D./D.Sc.. degrees in all NSF-supported fields during the combined previous two academic years.

Who May Serve as PI:

ITT proposals require an upper-level administrator with decision-making authority (i.e. Dean or higher) as PI or co-PI.

For DDTT proposals, the unit head, chair, or equivalent should be a PI or co-PI for the duration of the project.

No restrictions for Hub and EFRT proposals.

Limit on Number of Proposals per Organization:

DDTT proposals: Eligible institutions with an active Track 3: Institutional Transformation project (ITP) award from [NSF 22-611](#), [NSF 22-545](#), or [NSF 20-599](#) or an active ITT award from this solicitation must describe how the proposed DDTT project is compatible with the efforts being undertaken by the active award.

ITT proposals: Eligible institutions may submit one proposal and may not have an active Track 3 Institutional Transformation Project (ITP) award from, [NSF 22-611](#), [NSF 22-545](#), or [NSF 20-599](#). Institutions with an active DDTT award from this solicitation must describe how the proposed ITT project is compatible with the departmental/divisional transformation effort being undertaken by the active award.

EFRT and Hub proposals: No Restrictions

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

For DDTT, ITT and EFRT, an individual may be listed as PI or co-PI on only one proposal.

An individual may only serve as a PI or co-PI on one Hub proposal or active Hub project at any time.

Additional Eligibility Info:

- With the exception of conference proposals, proposals may only be submitted by the following:

To be eligible for funding an institution must meet the following criteria:

1. Be an accredited institution of higher education.
2. Offer Undergraduate STEM educational programs that result in certificates or degrees.
3. Satisfy the definition of an HSI as specified in section 502 of the Higher Education Act of 1965 (20 U.S.C. 1101a) [and meet the eligibility of an HSI by the U.S. Department of Education](#) definition. Documentation (eligibility letter) from the Department of Education confirming HSI designation must be submitted as a supplemental document.

Additional requirements to be eligible for funding in the **Emerging Faculty Research Track (EFRT)**, the institution must meet the four criteria listed above at the time of submission and:

1. Be an eligible Primarily Undergraduate Institution (PUI)[1] . Eligible PUIs are accredited colleges and universities (including two-year community colleges) that award Associate's degrees, Bachelor's degrees, and/or Master's degrees in NSF-supported fields, but have awarded 20 or fewer Ph.D./D.Sc.. degrees in all NSF-supported fields during the combined previous two academic years.

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.

Project Data Form: A Project Data Form must be submitted as part of all proposals. The information on this form is used to direct proposals to appropriate reviewers and to determine the characteristics of projects supported by the NSF Division of Undergraduate Education (DUE). In Research.gov, this form will appear as a required section of the proposal only after the ETSE solicitation number has been selected in Step 1 of the Proposal Creation Wizard. Grants.gov users should refer to Section VI.5.2. of the NSF Grants.gov Application Guide for specific instructions on how to submit the DUE Project Data Form.

Project Description: The project description should follow the requirements outlined in the NSF PAPPG and this solicitation. The narrative is limited to 15 single-spaced pages except for Planning proposals, which should adhere to the page limitation presented in the PAPPG. The Project Description must explain the project's motivating rationale, goals, objectives, deliverables, and describe how they address the goals of the HSI program. **In addition to the required sections, all proposals to ETSE must include the track specific requirements noted in Section II and below.** The following sections must be included in the 15-page project description with a bold heading.

Results from Prior NSF Support: If applicable the Project Description must include a section on results from prior NSF support. This must include support for projects pertaining to the proposed project that the PI or any of the co-PIs have been involved with (including sub-awards from NSF supported projects). This section should be aligned with the requirements given in the NSF PAPPG and contain specific outcomes and results to demonstrate the impact of the project. If the project team has had no prior support pertaining to the new proposal, this should be stated in the proposal. It is not required to have prior support to be successful in the HSI program.

Project Rationale, Significance and Objectives: The proposal should contain specific objectives that address the goals of the HSI program. The project rationale should build a compelling case for the proposed work, its approach, and how the work will advance knowledge regarding STEM education at HSIs. Proposals are expected to build on prior fundamental and/or applied research in STEM education or provide theoretical and empirical justification for the proposed project as needed. Justification may be accomplished through a combination of relevant literature, institutional data, and summaries of results from prior work.

Broader Impacts: Please note that per guidance in Chapter II of the NSF PAPPG, the Project Description must contain a separate section within the narrative labeled "Broader Impacts." 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.



Institutional Data Narrative: All DDTT and ITT proposals must include an Institutional Data Narrative to demonstrate the need for and potential benefits of the project. Proposers are encouraged to make appropriate use of disaggregated data in order to examine the intersectional identities of their students. These data may use any metrics that are appropriate for the project and may be tabular, graphical, or narrative in nature.

Commitment and Sustainability: All proposals must document an institutional commitment to faithfully carry out the project. This may include a discussion of how the institution will allocate existing and new resources to benefit the project. All proposals must demonstrate an institutional commitment to build upon or sustain any successful results of the project beyond the funding period.

Research Plan: All ETSE proposals must clearly describe efforts to generate knowledge through assessment, research, and/or evaluation. Projects must be situated in the existing practice, literature, and theory in the context of STEM education at an HSI and address questions of significance to those who work in and support HSIs. Assessing the impact of efforts as part of knowledge generation may be carried out by the PI and co-PIs or in partnership with an education researcher, evaluator, institutional research offices or other colleagues with measurement expertise.

Project Evaluation: All ETSE proposals must include a section that will describe how the project will assess progress, document outcomes, and evaluate success in achieving the project's goals.

Guidelines for ETSE Proposals: All ETSE proposals must include a detailed evaluation plan, executed by an experienced and independent evaluator, that will provide both formative and summative feedback on the project's progress towards its stated goals. Evaluation plans for IEP proposals should: (1) describe the aspects of the proposed project to be evaluated, (2) demonstrate the alignment between project activities and evaluation efforts, and (3) provide the design of the evaluation plan, including mechanisms for formative evaluation. Furthermore, evaluation plans for IEP proposals should include clear evaluation questions, quantitative and/or qualitative data streams beyond baseline institutional research data, specified methods for data analysis, and a mechanism for providing a written evaluation report to the project team at least annually.

The selected project evaluator should be independent from the project team but may be an individual from the same institution who has expertise in evaluation and assessment. Evaluators are expected to adhere to the American Evaluation Association's Guiding Principles for Evaluators (<https://www.eval.org/About/Guiding-Principles> ) , and project evaluations are expected to be consistent with standards established by the Joint Committee on Standards for Educational Evaluation (<http://www.jcsee.org/program-evaluation-standards-statements> ).

If the submitting organization requires external evaluation consultants to be selected through a competitive bid process after an award is made, the proposer should mention the policy and describe the plans to select and collaborate with the evaluator once an award is made. Proposals without a named evaluator due to such a restriction should still include an evaluation plan reflecting the guidance provided above.

Project Management Plan: All proposals should include a project management plan indicating the roles and responsibilities of anyone serving as PI, co-PI, or senior personnel on the proposed project. Multi-institutional proposals including subawards should describe how project management responsibilities will be distributed across institutions as appropriate. The description provided should enable reviewers to assess the alignment of the team's experience and professional capabilities that are relevant to the proposed project. The project management plan may additionally

describe other contributors as appropriate for the project, including STEM professionals, collaborators, researchers, advisory board members, evaluators, consultants, and contractors.

Dissemination Plan: All ETSE projects must include a plan to disseminate project outcomes to interested stakeholders and members of the HSI community. Innovative approaches that will strategically engage specific or broad audiences are encouraged.

Facilities, Equipment & Other Resources: See PAPPG Chapter II.D.2.g

Senior Personnel Documents: See PAPPG Chapter II.D.2.h.

Data Management and Sharing Plan: Proposers should provide a detailed data management and sharing plan. 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 Directorate-specific data management plan guidance, which can be accessed at <https://www.nsf.gov/bfa/dias/policy/dmpdocs/ehr.pdf>.

Mentoring Plan (if applicable): Required when funding is requested to support postdoctoral scholars or graduate students. See PAPPG Chapter II for instructions for the preparation of this item.

Special Information and Supplementary Documents: Please refer to the PAPPG Chapter II for additional guidance on Supplementary Documents. There is a distinction between supplementary documents and an appendix. Documents outside of what is described below may be interpreted as an appendix and can result in the proposal being returned without review.

- **Letters of Collaboration:** Proposals are encouraged to include letters of collaboration from internal and external partners and project contributors outside of the project PIs and co-PIs. The format of these letters should closely align with the suggested language provided in the PAPPG.
- **Letters of Support from Key Administrators:** All DDTT, ITT and Hub proposals must include letters of support from upper-level institutional administrators, at the level of Dean or higher, with responsibility for academic affairs and/or undergraduate STEM education in the proposal's focal unit(s). These letters should outline concrete mechanisms for institutionalization and sustainability of the project activities and should be uploaded as supplemental documents. EFRT proposals should include a letter of commitment from the PI's Department Chair or Dean stating that the PI will have institutional support in terms of allowance to utilize project-funded for release time, travel for research purposes, and access to existing research facilities. This should be included as a supplementary document.
- **Biographical Sketch of the External Evaluator:** If an evaluator is named in the proposal, then a biographical sketch can be included as a supplementary document. This must follow the NSF format for biosketches and must not be a resume, CV, or quote for services.
- **Letter of Eligibility:** The institution submitting a proposal to the ETSE program for tracks: DTT, ITT and EFRT must be a Hispanic-serving institution as defined by law in Section 502 of the Higher Education Act of 1965 (20 U.S.C. 1101a). A copy of the most recent Letter of Eligibility from the Department of Education must be included as a supplementary document. For collaborative proposals from multiple institutions, each submitting institution must be a Hispanic-serving institution and submit an Eligibility Letter. For collaborative proposals from a single institution, an Eligibility Letter is required only from the lead institution.
- **Undergraduate Student Mentoring Plan:** All ETSE proposals that plan to financially support undergraduate students, for instance as tutors, peer mentors, research assistants, or other trainees must include a student mentoring plan of a maximum of 1 page as a supplementary document. This document should discuss specific strategies that will be utilized to provide academic, professional, and other valuable types of mentoring to these students. A student mentoring plan is not required if a project solely intends to provide incentives to students serving as research subjects without additional training requirements or duties. This solicitation specific required plan is separate and distinct from the mentoring plan required by the PAPPG for proposals that request funding to support postdoctoral scholars or graduate students.

Information regarding the preparation of a Conference Proposal can be found in Section II of this solicitation and in PAPPG Chapter II.F.9.

Information regarding the preparation of a Planning Proposal can be found in Section II of this solicitation and in PAPPG Chapter II.F.1

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

Other Budgetary Limitations

Funds requested for EFRT proposals are intended to support investigators' specific needs and may include, but are not limited to the following: faculty release time; technical support for research; faculty and student professional development; travel to conferences; acquisition or upgrading of research equipment; development of special topics or seminar courses; and collaborative research efforts including travel to collaborating institutions or travel for collaborators to visit the PI at their home institution. The budget may include support for student trainees or post-doctoral fellows.

EFRT proposals can be used to support sabbatical activities, including providing salary supplements in cases where the proposing institution does not provide full salary support.

Collaborative Funding for non-HSIs:

Except for the ITT, the ETSE solicitation welcomes collaborative proposals. Collaborative Proposals from Multiple Institutions (PAPPG Chapter II.E.3.b) are encouraged as long as each lead and non-lead Institution is an HSI. If the collaboration involves institution(s) that are not HSIs, these institution(s) must be included as a non-lead subaward (PAPPG Chapter II.E.3.a) from the lead HSI. Collaborative proposals involving non-HSIs may not be submitted as Collaborative Proposals from Multiple Institutions (PAPPG Chapter II.E.3.b)

ETSE project funds may not be used for:

- Student scholarships (please see the S-STEM, SFS, or Robert Noyce Teacher Scholarship programs for scholarships for students).
- Equipment or instrumentation that does not significantly improve instructional capability, please see the Educational Instrumentation Track in the ELSPE solicitation.
- Teaching aids (e.g., films, slides, projectors, "drill and practice" software).
- Vehicles, trailers, laboratory furnishings, or general utility items such as office equipment, benches, tables, desks, chairs, storage cases, and routine supplies.
- Maintenance equipment and maintenance or service contracts.
- Modification, construction, or furnishing of laboratories or other buildings.
- Installation of equipment or instrumentation (as distinct from the on-site assembly of multi-component instruments--which is an allowable charge).

In accordance with 2 CFR § 200.413, the salaries of administrative and clerical staff should normally be treated as indirect costs (F&A). Direct charging of these costs may be appropriate only if all the conditions specified in 2 CFR § 200.413 are met.

Budget Preparation Instructions:

In FY 2024, the HSI program expects to fund new awards totaling \$20,000,000, subject to the availability of funds.

Budgets and budget justifications submitted to this solicitation should reflect an equitable distribution of funds based on the proposed scope of the project. All budget requests must be consistent with the proposed scope and duration of the project in its track and cannot exceed the maximum permitted in its track. Proposers to the ETSE solicitation should provide a budget for each year of support requested.

C. Due Dates

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

September 11, 2024

August 27, 2025

Last Wednesday in August, 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/ProposalPreparationanc

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 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 and Sharing Plan and the Mentoring Plan, as appropriate.

Additional Solicitation Specific Review Criteria

In addition to the two NSF criteria for Intellectual Merit and Broader Impacts, the additional HSI proposal review criteria for DDTT, ITT and Hub proposals are as follows:

- How effectively does the design of project activities (e.g., student supports, evaluation, research, etc.) take into account students' membership in populations described by demographic characteristics or lived experiences (e.g., low-income, commuter, parenting, first-generation, or veteran status) to reflect the HSI context and the community it serves?

The following criterion is also in effect for ITT and DDTT proposals.

- How effectively do the proposed goals, objectives, and activities demonstrate potential to drive institutional or departmental transformation that will result in a more student-centered STEM environment and increase the likelihood of success for students across a diversity of populations?

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)*; 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:

HSI Program Evaluation: Projects are required to cooperate and participate in additional program efforts to gather data and information to support HSI program monitoring and evaluation. Projects are furthermore required to participate, if asked, in any efforts to synthesize and disseminate program outcomes via current or future HSI-Net Centers.

Open Access to Project Products: Developers of new materials are required to license all work (except for computer software source code, discussed below) created with the support of the grant under either the 3.0 Unported or 3.0 United States version of the Creative Commons Attribution (CC BY), Attribution-ShareAlike (CC BY-SA), or Attribution-NonCommercial-ShareAlike (CC BY-NC-SA) license. These licenses allow subsequent users to copy, distribute, transmit, and adapt the copyrighted work and requires such users to attribute the work in the manner specified by the grantee. Notice of the specific license used would be affixed to the work and displayed clearly when the work is made available online. For general information on these Creative Commons licenses, please visit <http://creativecommons.org/licenses/> .

It is expected that computer software source code developed or created with NSF funds be released under an intellectual property license that allows others to use and build upon the work. The grantee may release all new source code developed or created with IUSE grant funds under an open license acceptable to the Free Software Foundation (<http://gnu.org/licenses/> ) and/or the Open-Source Initiative (<http://opensource.org/licenses/> ) .

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.

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:

- Sonja Montas-Hunter, telephone: (703) 292-7404, email: smontash@nsf.gov
- Michael J. Ferrara, telephone: (703) 292-2635, email: mferrara@nsf.gov
- Josephine J. Rodriguez, telephone: (703) 292-2986, email: jrodrigu@nsf.gov
- Robert Talbot, telephone: (703) 292-7165, email: rtalbot@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/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 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

X. Appendix

References:


¹ Definition of PUI:

<https://carnegieclassifications.acenet.edu/carnegie-classification/classification-methodology/basic-classification/> 

² Núñez, A.M., 2014. Advancing an intersectionality framework in higher education: Power and Latino postsecondary opportunity. In Higher education: Handbook of theory and research (pp. 33-92). Springer, Dordrecht.

³ McNair et al. (2022) Becoming a Student-Ready College: A New Culture of Leadership for Student Success. Hoboken, NJ: Josey-Bass.

⁴ Garcia, Gina A. "Defining "Servingness" at HSIs in Practice at Hispanic-Serving Institutions (HSIs)." Hispanic Serving Institutions (HSIs) in Practice. Charlotte: Information Age Publishing, 2020, xi-xxvi.

⁵ Dweck, C. S., & Yeager, D. S. (2019). Mindsets: A View From Two Eras. Perspectives on Psychological Science, 14(3), 481-496. <https://doi.org/10.1177/1745691618804166> 

⁶ Developing a Theory of Change: Practical Theory if Change Guidance, Templates and Examples.

https://www.aecf.org/resources/theory-of-change?gad_source=1&gclid=CjwKCAiAjrArBhAWEiwA2qWdCAc_GqSz611wuDm7

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[Plain language](#) |



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