



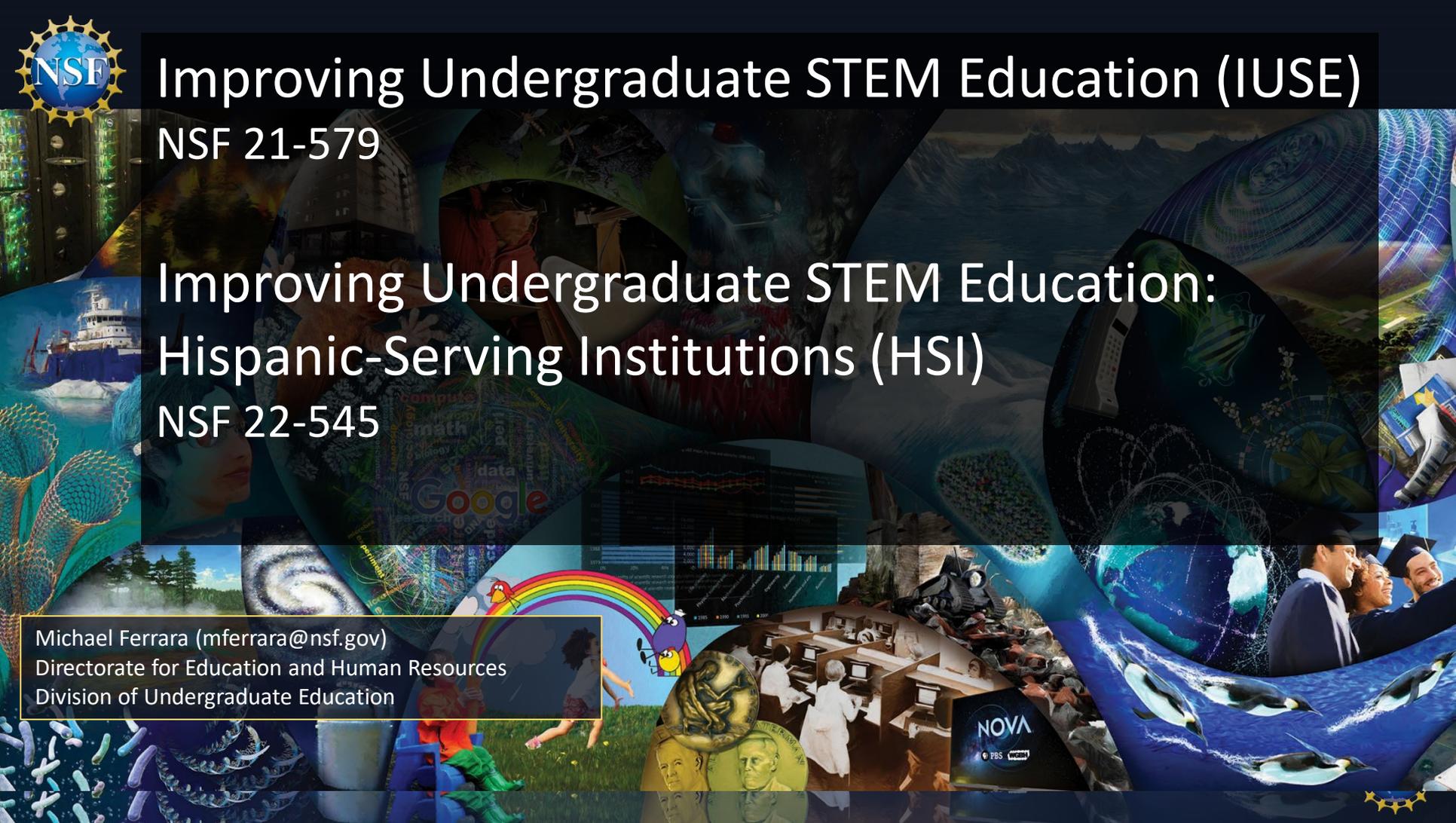
Improving Undergraduate STEM Education (IUSE)

NSF 21-579

Improving Undergraduate STEM Education: Hispanic-Serving Institutions (HSI)

NSF 22-545

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Division of Undergraduate Education

DUE invests in efforts aimed at strengthening STEM education at two- and four-year colleges and universities by improving curricula, instruction, laboratories, infrastructure, assessment, diversity of students and faculty, and collaborations.



Improving Undergraduate STEM Education (IUUSE) NSF 21-579



IUSE: EHR Program Goals

To build knowledge about STEM teaching and learning at the undergraduate level

Develop novel, creative, and transformative approaches to undergraduate STEM teaching and learning

To incorporate evidence-based practices in STEM teaching and learning for all undergraduates

Adapt, improve, replicate, and include evidence-based practices in STEM teaching and learning

To build and understand systemic change in undergraduate STEM education

Lay the groundwork for sustained departmental, institutional, or community transformation and improvement



Knowledge Generation

All IUSE: EHR proposals are expected to increase knowledge about effective STEM education through

- Posing one or more research questions OR
- Evaluation of project activities, impacts, or outcomes

The IUSE program has no preference for specific methodologies, frameworks, or other aspects of the knowledge generation effort.

Proposers are encouraged to identify approaches that are best suited to the project's research and/or evaluation questions.



IUSE: EHR Program Organization

Two program tracks:

- **Engaged Student Learning:** development, testing, and use of teaching practices and curricular innovations that will engage students and improve learning, persistence, and retention in STEM
- **Institutional and Community Transformation:** transformation of colleges and universities to implement and sustain highly effective STEM teaching and learning

Proposals are accepted from all types of institutions of higher education and from professional societies and organizations that work with or represent those institutions.



Engaged Student Learning

- Focuses on improving student learning (directly or indirectly)
- Supports development of improved instructional materials and/or methods
- Aims to engage students, improve learning, and increase retention in STEM

Projects Welcome in All Settings: Classroom(s), Department(s), Institution(s), Discipline(s)

Projects Welcome Considering All Groups: STEM or Non-STEM majors, pre-service teachers pursuing UG STEM licensure, VITAL Faculty, T/TT Faculty



Institutional and Community Transformation

- Focuses on improving evidence-based instruction by academic departments, institutions, and other organizations or communities.
- Supports efforts to build and understand systemic change in undergraduate STEM education.
- Aims to use appropriate theories of change to transform institutions and/or communities.

ICT Projects can look to transform courses, policies, practices or any aspect of institutions and communities.



Institutional and Community Transformation proposals should....

- Describe **theory of change**.
- Include **research literature and theoretical perspectives** concerning change.
- Recognize STEM higher education as a **complex system**.
- Promote institutional change and include:
 - **Teams** of faculty members
 - **Support** from the department chairs, college deans, or others within the institution's academic leadership
 - **Support** from Provosts or Presidents



Program Deadlines

- Level 1, 2, & 3, and Capacity-Building proposals:
 - **July 20, 2022** (and the third Wednesday in July thereafter)
- Level 1 and Capacity-Building proposals :
 - **January 18, 2023** (and the third Wednesday in January thereafter)

Proposals for workshops and conferences addressing critical challenges in undergraduate STEM education may be **submitted at any time**. Please reach out to a program officer to discuss your idea before submitting.



Improving Undergraduate STEM Education: Hispanic-Serving Institutions (HSI Program) NSF 22-545



The HSI Program Team

Co-leads: Erika Tatiana Camacho, Michael Davis

Program Officers: Michelle Camacho, Mary Crowe, Luis Cubano, Michael Ferrara, Elsa Gonzalez, Sonja Montas-Hunter

Program Monitoring Team: Frances Carter-Johnson, Rebecca Rosenblatt, Taylor Dent-Darden, Catherine Prunella, Brianne Gutmann

Program Specialists: Toni Edquist, Tierra Hardin



HSI Program Goals

The **goals** of the HSI Program are to:

- ✓ enhance the quality of undergraduate STEM education and
- ✓ increase the recruitment, retention, and graduation rates of students pursuing associates or baccalaureate degrees in STEM fields at HSIs.



Key Strategies

The **strategies** to achieve these goals are to:

1. build capacity at HSIs through innovative approaches;
2. incentivize institutional and community transformation; and
3. promote fundamental research on
 - i. engaged student learning,
 - ii. what it takes to diversify and increase participation in STEM effectively, and
 - iii. how to build institutional capacity at HSIs.



HSI Tracks

Track 1: The Planning or Pilot Projects (PPP) track supports pilot projects or planning efforts looking towards a future Track 2 or Track 3 submission.

Track 2: The Implementation and Evaluation Projects (IEP) track supports the implementation of evidence-based activities in one or more STEM disciplines. Projects must include a research component and may center on practices or adapt/replicate practices that are already known to be effective.

Track 3: The Institutional Transformation Projects (ITP) track supports research and development of sustainable transformation efforts across all STEM disciplines at the institution. The project must be grounded in STEM education and broadening participation research and be designed to foster long-term institutional changes.



Track-specific Eligibility Criteria

Track 1: PPP

An institution must

- satisfy the definition of an HSI as specified in section 502 of the Higher Education Act of 1965 (20 U.S.C. 1101a) and submit the HSI Certification Form;
- be **PUI or New to NSF** and does not need to currently offer STEM degrees or certificates.

An institution cannot have more than two active PPP awards or a Track 1 award under the previous solicitations [NSF 18-524](#) and [NSF 19-540](#) .

Track 2: IEP

An institution must

- satisfy the definition of an HSI as specified in section 502 of the Higher Education Act of 1965 (20 U.S.C. 1101a) and submit the HSI Certification Form;
- offer undergraduate STEM educational programs that result in certificates or degrees.

An institution cannot have more than two active IEP awards or two Track 1 awards under the previous solicitations [NSF 18-524](#) and [NSF 19-540](#) .

Track 3: ITP

An institution must

- satisfy the definition of an HSI as specified in section 502 of the Higher Education Act of 1965 (20 U.S.C. 1101a) and submit the HSI Certification Form;
- offer undergraduate STEM educational programs that result in certificates or degrees.

One submission per institution is allowed. Previous ITP awardees are not eligible to submit a proposal in the ITP track.



Questions?

