DIRECTORATE FOR EDUCATION & HUMAN RESOURCES



Erika T. Camacho Michelle M. Camacho Program Directors & Co-leads HSI Program ecamacho@nsf.gov macamacho@nsf.gov

National Science Foundation HSI Program



HACU Conference April 20, 2020

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Michelle M. Camacho Erika T. Camacho Program Directors & Co-leads HSI Program

macamacho@nsf.gov ecamacho@nsf.gov Improving Undergraduate STEM Education: Hispanic-Serving Institutions (HSI Program) NSF 19-540

- Goals:
 - build capacity in undergraduate STEM education at HSIs that typically do not receive high levels of NSF grant funding
 - increase the retention and graduation rates of students pursuing associate or baccalaureate degrees in STEM fields at HSIs

Website: <u>https://nsf.gov/ehr/HSIProgramPlan.jsp</u> contains FAQs, data from listening sessions, and announcements

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American Innovation and Competitiveness Act, Public Law 114-329

"The Director shall award grants on a competitive, merit-reviewed basis to Hispanic-serving institutions (as defined in section 502 of the Higher Education Act of 1965 (20 U.S.C. 1101a)) to **enhance the quality of undergraduate STEM education** at such institutions and to **increase the retention and graduation rates** of students pursuing **associate's or baccalaureate degrees** in science, technology, engineering, and mathematics."

Consolidated Appropriations Act, 2017 Public Law 115-31

"The agreement also directs NSF to establish an Hispanic Serving Institution (HSI) program at no less than \$15,000,000...to use this program to **build capacity at institutions of higher education that typically do not receive high levels of NSF grant funding."**

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NSF Organization



National Science Foundation 2415 Eisenhower Avenue Alexandria, Virginia 22314 TEL: 703.292.5111 | FIRS: 800.877.8339 | TDD: 800.281.8749





Directorate for Education & Human Resources

Office of the Assistant Director

Division of Research on Learning in Formal and Informal Settings (DRL)

Division of Graduate Education (DGE)

Division of Undergraduate Education (DUE) Division of Human Resource Development (HRD)





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DUE & HRD Co-Manage the HSI Program



- Division of Undergraduate Education (DUE)
 - DUE's programs are intended to strengthen STEM education at two- and four-year colleges and universities by improving curricula, instruction, laboratories, infrastructure, assessment, diversity of students and faculty, and collaborations.

• Division of Human Resource Development (HRD)

HRD programs support and promote activities that seek to strengthen STEM education for underserved communities, broaden their participation in the workforce, and add to our knowledge base about programs of inclusion.





US HSIs By the Numbers



ENROLLMENT 46% of students at HSIs are Latinx

62% of HSIs enroll under 5,000 students

GEOGRAPHY- 62% of HSIs are located in California, Texas, Puerto Rico, and New York

SECTOR: 42% are public two-year 28% are private four-year

25% are public four-year

Source: Excelencia in Education

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HSI PROGRAM Institutional Eligibility

- Institutions must be accredited and offer undergraduate educational programs in STEM, and satisfy the HSI definition as specified in section 502 of the Higher Education Act of 1965 (20 U.S.C. 1101a), i.e.,

 a) be an eligible institution; and
 b) have a full-time equivalent enrollment of undergraduates that is at least 25% Hispanic.
- **Certification of eligibility** is required with submission of a proposal to the HSI Program.
 - https://nsf.gov/ehr/Pubs/HSICertForm.pdf





Track 1: Building Capacity Maximum of \$2.5M up to 5 years Track 2: HSIs New to NSF*, planning grants Maximum \$300K up to 3 years (*no NSF funding at the institution in past 5 years)

HSI PROGRAM Tracks





Track 1: Building Capacity

Priority Area 1: Critical Transitions

Priority Area 2: Innovative Cross-Sector PartnershipsPriority Area 3: Teaching and Learning in STEM

- Proposals should focus on one or more of these priority areas, as appropriate to the project goals and the institution capabilities and resources.
- The proposal should identify its priority area(s) in both the overview of the Project Summary and the body of the proposal.

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Track 1: Building Capacity

Priority Area 1: Critical Transitions

- Proposals should include **institutional data** that demonstrates a **need** for the proposed project.
- The proposed project should **identify** and **investigate factors** that affect student success and subsequent graduation.
- Institutional partnerships should have in place or plan to develop **articulation agreements** for the transfer of students from one institution to another that leads to STEM degree attainment.
- Successful project leadership teams will typically include STEM administrators and those who specialize in higher education issues and processes. Consider project design –team should reflect capacity needed.

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Track 1: Building Capacity

Priority Area 2: Innovative Cross-Sector Partnerships

- Partners may include industry, government, academic institutions, non-profit organizations, and local communities.
- Projects should prepare students for future STEM careers by increasing access to experiential professional development opportunities.
- Projects may provide opportunities for faculty engagement in interdisciplinary and cross-sector STEM research.

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Track 1: Building Capacity

Priority Area 3: Teaching and Learning in STEM

- Projects should generate new knowledge about teaching and learning strategies and curricular models that improve undergraduate STEM education for a culturally diverse student population at HSIs.
- Projects may also create and adapt evidence-base successful studies to a new context/environment or strategies to enhance STEM learning that lead to measurable gains and implementable models.
- Projects enhance understanding of how students learn STEM topics and how faculty adopt culturally relevant instructional approaches in STEM.
- Projects may include investigators (internal or external to the institution) with expertise in education research and/or social science research methods, as well as knowledge about STEM programs.

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Track 2: HSIs New to NSF

- Build capacity in undergraduate STEM education at HSIs that either have never received NSF funding or have not received funding from NSF in the five years prior to the proposal deadline.
- Stimulate implementation, adaptation, and innovation in one or more of the three priority areas identified in Track 1.
- Projects will develop or adapt evidence-based models.
- Anticipated new knowledge to be generated from the project should be described.
- It is expected that some of the funded Track 2 projects will serve as pilots for ideas that may be expanded in future proposals in Track 1 or other NSF programs.





THE NATIONAL SCIENCE FOUNDATION

PROPOSAL AND AWARD POLICIES AND PROCEDURES GUIDE



Conference Proposals

- Proposals for conferences addressing critical challenges in undergraduate STEM education at HSIs may be submitted at any time following consultation with a program officer.
- Conference proposals that address increasing the diversity of institutions and faculty participating in the HSI Program are encouraged.
- Proposals may involve collaborations of education researchers and scientists in the STEM disciplines to ensure that undergraduate STEM education addresses the cultural differences of diverse student populations.
- Information about preparing a Conference Proposal is contained in PAPPG Chapter II.E.7.



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NSF HISPANIC SERVING INSTITUTION STEM RESOURCE HUB.

The NSF National Resource Hub for STEM Education at Hispanic Serving Institutions will provide HSIs with resources for building institutional capacity that will increase STEM student retention and degree completion (NSF Awards 1832338 and 1832345). The Hub is a collaborative effort between New Mexico State University (NMSU), California State University at Northridge (CSUN), and Dona Ana Community College (DACC).

The NSF HSI Program has tasked the Resource Hub with supporting the needs of HSIs, especially those with little or no prior NSF funding, by providing assistance with grantsmanship and fostering institutional capacity required to support STEM education and research. In addition, the Resource Hub will facilitate networking and professional development that build and strengthen collaborations among HSIs.

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About Mini-Grants Workshops News & Events

WORKSHOPS.

Join us for our NSF STEM Workshops. HSI STEM Hub network hosts STEM workshops at Universities and Colleges throughout the country.



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HSI STEM Resource Hub Virtual Workshops

Date	Tuesday's Topic (12:00 PST)	Speakers
Tuesday, May 12, 2020	Finding and Responding to Call	Ellen Carpenter
Tuesday, May 19, 2020	Insights from Recent HSIAwardees	Antonio Garcia/Matt Cover
Tuesday, May 26, 2020	Framing Student Success	Alex Racelis/
Tuesday, June 2, 2020	Developing Research Questions	Alex Racelis/ Sudarshan
Tuesday, June 9, 2020	Key Personnel & Letters of Commitment	Martha/Delia
Tuesday, June 16, 2020	Open Session for Discussion	
Tuesday, June 23, 2020	Finding and Responding to Call	Erika Camacho
Tuesday, June 30, 2020	Insights from Recent HSIAwardees	Jeffrey Alexander/Liesel Jones
Tuesday, July 7, 2020	Biosketches & evaluation	Martha/Delia
Tuesday, July 14, 2020	Developing Budget and Budget Narrative	NMSU Sponsored Programs
Tuesday, July 21, 2020	Instituional Capacity	Jeffrey Alexander/Liesel Jones
Tuesday, July 28, 2020	Open Session for Discussion	











2020 GANAS MINI-GRANT PROGRAM PROPOSAL

NSF HSI Initiative - Up to \$12,500

TRACK 1 (Building Capacity): Open to all eligible institutions. This track has three priority areas: Critical Transitions; Innovative Cross- Sector Partnerships; and Teaching and Learning in STEM.

TRACK 2 (HSIs New to NSF): Open only to eligible institutions that have never received NSF funding, or that have not received NSF funding in the five years preceding the proposal deadline

Check back for the next mini-grant deadline (likely June 2020)

Grants will be distributed by March 30, 2020 for project planning and development for submission to NSF 19-540 (https://www.nsf.gov/pubs/2019/nsf19540/nsf19540.htm#toc) for Fall 2020 call for proposals. (NSF Awards 1832338 and 1832345)



For more details about this Mini-Grant, please contact: Margie Vela; Program Manager NSF HSI STEM Resource Hub, 575-527-7665 hsistemhub@nmsu.edu 3400 Espina Street; Las Cruces, NM 88003

Any opinions, findings, and conclusions or recommendations expressed during the workshop are those of the presenter and do not necessarily reflect the views of the National Science Foundation, New Mexico State University, Doña Ana Community College, or California State University, Northridge.

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Research Design

• The **research design** addresses a research question and/or hypothesis that is important to the project and the field and is appropriate to the **size** and **scope** of the project.

Project Evaluation: Measures to Assess Success

• The **evaluation plan** examines all aspects of the project activities to inform the project's progress towards its goals and is appropriate to the **size** and **scope** of the project.

Successful proposals will have well-aligned research questions/hypotheses, methods, analyses, project activities, and project evaluation.





Research vs. Evaluation

Soup as a metaphor



• Research

- What happens to the soup's flavor when I use different ingredients?
- How does the rate of cooling change when I use different bowls?
- Evaluation
 - Did I use appropriate procedures to make the soup?
 - Did I adequately consider the possible ingredients I might use?







WHEN THE GUESTS TASTE THE SOUP

@bryanMMathers

FROM STEVE WHEELER'S BLOG "THE AFL TRUTH ABOUT ASSESSMENT"

FORMATIVE SUMMATIVE

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For the NSF HSI Program

- Letters of Collaboration that document what is being committed that is of significance to the project must be provided. (Tell your OSP officer, these letters are different from the template in PAPPG)
- Letters that merely endorse the project or offer nonspecific support for project activities should not be included and the proposal may be returned without review if general support letters are included.





Helpful Hints



- 1. Read the Program Solicitation (several times)
- 2. Talk with your Sponsored Projects Office
 - University deadlines & limited submission
 - Institutional Review Board "IRB" approvals
 - e.g., institutional Animal Care and Use Committee (IACUC) approvals
- 3. Work on projects you care deeply about
- 4. Build on what others have done







Helpful Hints (continued)



- 5. Think global act local and global
- 6. Have measurable goals and objectives
- 7. Think teamwork
- 8. Talk with NSF program officers
 - Your proposed project (1-2 pg white paper)
 - Clarifications on program requirements/limitations
 - Current program patterns







Helpful Hints (continued)



- 9. Use good management skills
- 10. Create a timeline to address the requirements of the proposal and draft the various sections
 - E.g., Institutional commitments
- 11. Work with Sponsored Projects Office on the budget \sim



- **12. Evaluate for impact and effectiveness**
 - Professional evaluator can help
- 13. Spread the word and talk with other PIs





10 Fatal Flaws



- 1. Assuming deadlines are not enforced
- 2. Assuming page limits and font size restrictions don't matter
- 3. Substituting flowery rhetoric for good examples
- 4. Not checking your speeling nore you're grammer
- 5. Assuming program guidelines have not changed, or better yet, ignoring them.





10 Fatal Flaws (continued)



- 6. Asserting that evaluation will be ongoing and consist of a variety of methods
- 7. Assuming a website is sufficient for dissemination
- 8. Assuming your past accomplishments are well known
- 9. Providing "support" rather than "commitment" letters
- 10. Inflating your budget to allow for negotiations





Key elements to consider in proposal preparation

• Goals

- ✓ What are you trying to accomplish?
- ✓ What will be the outcomes?

Rationale

- ✓ Why do you believe that you have a good idea?
- ✓ Why is the problem important?
- ✓ How does it tie into previous literature/efforts?
- ✓ Why is your approach promising?
- ✓ Why are you ready to under take this work?

Evaluation

- ✓ How will you manage the project to ensure success?
- ✓ How will you know if you succeed?

Dissemination

- ✓ How will others find out about your work?
- ✓ How will you interest them?

Sustainability

✓ How will your project be maintain beyond the life of the award?





FastLane is recommended.



HSI Resources

HSI Program solicitation, **NSF 19-540**: <u>https://www.nsf.gov/pubs/2019/nsf19540/nsf19540.htm</u>

FAQs: https://www.nsf.gov/pubs/2019/nsf19024/nsf19024.pdf

Program Website: <u>https://nsf.gov/ehr/HSIProgramPlan.jsp</u>

FastLane Help Desk: 1-800-673-6188 or e-mail Fastlane@nsf.gov





Any Questions?

Thank you for your attention!

Michelle M. Camacho & Erika T. Camacho <u>mcamacho@nsf.gov</u> <u>ecamacho@nsf.gov</u>

Serve as an HSI reviewer & more information in the program website: https://nsf.gov/ehr/HSIProgramPlan.jsp