ALFRED P. SLOAN FOUNDATION

CALL FOR LETTERS OF INQUIRY

Creating Equitable Pathways to STEM Graduate Education

Grants of up to $500,000 will be awarded to U.S. higher education institutions and organizations developing equitable pathways to STEM graduate education for Black, Indigenous, and Latina/o Students

Submission Deadline: May 1, 2022

Overview

The Higher Education Program at the Alfred P. Sloan Foundation is seeking to invest in Minority Serving Institutions (MSIs)[1] and in the establishment of partnerships between MSIs and graduate programs at other colleges and universities. The Foundation's *Creating Equitable Pathways to STEM Graduate Education* grants will support institutional pathways from MSIs to master's and doctoral degree programs in astronomy, biology, chemistry, computer science, data science, Earth sciences, economics, engineering, marine science, mathematics, physics, and statistics.[2] Our intent is to facilitate the creation and strengthening of diverse, inclusive, and equitable pathways to and through STEM graduate education with the recognition that student pathways are too often disrupted by systemic racism, discrimination, and bias through prevailing institutional and departmental policy and practice.

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[1] The nation's more than 700 MSIs are designated as such by the U.S. Department of Education. There are 7 types of MSIs: Historically Defined MSIs were established through Acts of Congress with the stated purpose of providing access to higher education for a specific racial minority group, and include Historically Black Colleges and Universities (HBCUs) and Tribal Colleges and Universities (TCUs). Enrollment-Designated MSIs are federally recognized as MSIs based on student enrollment percentages and other criteria, and include Hispanic-Serving Institutions (HSIs), Alaska Native-Serving and Native Hawaiian-Serving Institutions (ANNHIs), Asian American and Native American Pacific Islander-Serving Institutions (AANAPISIs), Predominantly Black Institutions (PBIs), and Native American-Serving Nontribal Institutions (NASNTIs). In addition to these 7 types, we further welcome submissions by American Indian and Alaska Native-Serving Institutions (AIANIS) and Institutions with High Hispanic Enrollment (IHHEs) as defined by the U.S. Department of Education. For more information, see: https://www2.ed.gov/about/offices/list/ocr/edlite-minorityinst.html

[2] The Foundation does not support the health sciences, biomedical sciences, or medical research. For more information, see: https://sloan.org/grants/apply#tab-what-we-do-not-fund

This is our second year announcing this call, inspired by the innovative work underway across the country and with the recognition that much more work needs to be done.

We invite Letters of Inquiry (LOIs) for projects that seek to dismantle systemic barriers and create sustainable pathways to graduate education in the stated disciplines for domestic[3] Black, Indigenous, and Latina/o students. Compelling LOIs will result in the invitation of a full proposal. Submissions of LOIs are due no later than May 1, 2022 by 5:00pm EDT.

Proposed projects may take multiple forms, including, for example, planning activities on MSI campuses that set the stage for new pathways between MSIs and graduate programs at other MSIs or at Predominantly White Institutions (PWIs) and projects that establish or scale existing mutually beneficial partnerships between undergraduate and graduate programs at two or more institutions, at least one of which must be a MSI. In addition to establishing seamless pathways, projects need to include efforts to address policies and practices that reinforce existing systems that act as barriers to access and success in graduate education for domestic Black, Indigenous, and Latina/o students. These could include efforts to examine and/or redesign graduate recruitment, admission policies and processes, mentoring practices, departmental climate, and other gatekeeping (or gateway) structures to and through STEM graduate education. Since the barriers to equitable pathways don't end once students are admitted to graduate programs, the Foundation is looking for evidence that projects will promote and enhance existing efforts to reduce and eliminate policies, procedures, and institutional climates and cultures that prevent students from successfully navigating the pathways to attaining a graduate degree.

Background

The Sloan Foundation is seeking to diversify the STEM academic and non-academic workforce by significantly increasing the number of domestic Black, Indigenous, and Latina/o students who enroll and succeed in terminal master's and doctoral degree programs in astronomy, biology, chemistry, computer science, data science, Earth sciences, economics, engineering, marine science, mathematics, physics, and statistics.[4] The objectives of this funding program are to:

- Support the development and enhancement of educational pathways from MSI undergraduate programs to STEM master's and doctoral degree programs at other MSIs and/or PWIs;

- Support mutually beneficial partnerships between faculty and staff across such institutions—particularly as a key component of a broader commitment to creating stronger and more sustainable relationships between MSIs and PWIs in ways that foster joint research, expanded professional networks, and/or capacity building to serve domestic Black, Indigenous, and

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[3] We use the term *domestic* to refer to those who are U.S. citizens, permanent residents of the U.S., DREAMers, or holding refugee, asylee, or Jay Treaty status.

[4] The Foundation does not support the health sciences, biomedical sciences, or medical research. For more information, see: https://sloan.org/grants/apply#tab-what-we-do-not-fund

Latina/o students as they pursue master's and doctoral degrees in STEM;

- Enhance the quality of the undergraduate STEM education and research experiences such that they create strong, evidence-based, and equitable systems that support the academic and non-academic preparation of domestic Black, Indigenous, and Latina/o students for admission, enrollment, success, and completion in STEM graduate programs;

- Enable activities that disrupt systemic racism, bias, and discrimination in institutional policy and practice as it relates to STEM education pathways to graduate study and completion; and

- Lay the groundwork for long-term investment in equitable undergraduate to graduate education pathways by other foundations, government agencies, and higher education institutions themselves.

A key area of focus for this work is supporting approaches to proposed partnerships that create systemic change in the departments and schools on each campus,[5] meaning approaches that not only seek to change the odds for individual students but change the culture and climate within the environments that students reside. This may include changing the actions—and the mindsets—of STEM faculty and other gatekeepers such that they demonstrate not only a willingness, but a commitment, to sustained and mutually beneficial partnerships with MSIs and create equitable pathways to graduate degrees for domestic Black, Indigenous, and Latina/o students.

Project Types

Grant Types and Amounts

Three types of grants will be funded:

1. **Planning grants** to support two or more institutions to conduct internal reviews of existing barriers to student success and for analysis and planning for future systemic change partnerships/collaborations (Up to $75,000 for 1 year);

2. **Seed grants** to support work at two or more institutions that seek to formalize existing systemic change partnerships/collaborations and launch one or more pilot initiatives (Up to $250,000 over 1-2 years); and

3. **Implementation grants** to support work at two or more institutions that allow for the augmentation or scaling of existing systemic change partnerships/collaborations (Up to $500,000 over 2-3 years).

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[5] Read more about the need for systemic change in this Sloan-commissioned landscape scan that was co-authored by Posselt et al. here: https://sloan.org/storage/app/media/files/STEM_Higher_Ed/USC-Rossier-DEI-literature-review.pdf

We request only one letter of inquiry (from the lead institutional partner) per institution, and only one submission per individual PI. We expect to award up to 3 Implementation grants, with additional funding going to Planning and Seed grants. Another Call for Letters of Inquiry is expected to take place in 2023 and 2024, during which time Planning and Seed grants funded in prior cycles will be eligible for an award to scale their efforts. Over time, it is expected that the Foundation will seek continue to invest in successful efforts.

<u>Eligibility</u>
Institutions/organizations eligible as partners for the grant awards include:
- Non-profit two- and four-year institutions
- Institutional systems or consortia of institutions
- Professional societies and associations
- University-affiliated research centers or laboratories

<u>All projects must have at least one MSI partner.</u> When two or more institutions are the proposed grantees, <u>it is preferred that the primary PI be housed at the MSI</u>.

<u>Planning Grants to Two or More Institutions</u>
Planning grants will support work at two or more institutions (one of which must be an MSI) seeking to set the stage for the establishment of a partnership or set of partnerships that yield systemic change, but which will first require an assessment of the need and time for partnership activities. Projects must demonstrate a clear roadmap to partnership through a well-defined set of planning activities.

<u>Institutional Partnerships and Collaborations</u>
For seed and implementation grants, institutional partnerships should consist of two or more institutions (one of which must be an MSI), to include individual colleges and universities, institutional systems, and/or organizations facilitating such partnerships (e.g., professional societies and associations). Such partnerships must demonstrate the potential, or preliminary evidence, of promoting strong and sustainable pathways from undergraduate to graduate education in one or more of the named STEM disciplines for domestic Black, Indigenous, and/or Latina/o students. More specifically, partnerships should foster relationships between undergraduate programs and master's and/or doctoral programs.

Faculty-faculty research collaborations beyond the facilitation of undergraduate research opportunities are encouraged. We welcome creative partnerships – such as those that include a business or industry partner, a non-profit organization or association, or a federal research lab or other federal agency partner.

We encourage letters of inquiry with multiple (or Co-) PIs, with one PI's institution designated to receive the grant award and then issue subcontracts to the partner institutions. Because our funds are limited, we are requesting that no individual be a PI on more than one project (although a PI for one

project may also be a Co-PI on a second project). We have preference for projects where the lead PI holds an appointment at an MSI.

<u>Example Project Activities</u>
Activities for which awards will be considered include, but are not limited to:
- increasing students' academic and research success;
- strengthening mentorship, sponsorship, and other student supports;
- encouraging faculty research and other collaboration across campuses;
- building sustained social and academic support networks for students;
- challenging and eliminating institutional norms, policies, and practices that continue to privilege white students (and faculty) to the detriment of students (and faculty) of color;
- dismantling institutional racism and white privilege through transformative practices and policies.

The proposal review committee will be looking for evidence that institutions are simultaneously (in the proposed project or elsewhere) seeking to create or strengthen activities that disrupt systemic racism, bias, and discrimination in graduate education. This may include new or existing efforts to change graduate admissions policies, recruitment/outreach, teaching, curricula, research, advising mentoring, and teaching/research assistantship funding and other forms of student financial support.

The following are some **examples** of the types of activities that we envision supporting through these grants:

- The development and implementation of "bridge programs" that redefine traditional STEM graduate admissions and on-campus support programs for promising domestic Black, Indigenous and/or Latina/o students. As noted in a recent study by Tannenbaum et al., such bridge programs approach "student admissions with rigor and selectivity but [take] a different lens to the indicators that best predict success. A common thread [is] their attention to students who have demonstrated self-determination, persistence, and taken intellectual risks, as demonstrated less by GRE test scores and overall GPA, but of academic growth over time, of overcoming hardships in and out of school, and of taking courses that challenged their thinking and skills."[6]

- Automatic admission to graduate programs via formal academic structures (i.e., dual degree programs) that allow MSI students to receive a bachelor's degree from their home institution and a graduate degree from a partnering institution.

- Cross-institutional mentorship and sponsorship support for students through the creation of formal mentorship and sponsorship programs and activities that involve research exposure

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[6] See: https://www.understandinginterventionsjournal.org/article/17908-who-can-succeed-how-bridge-to-the-doctorate-programs-are-changing-the-conversation-around-admissions-practices-in-stem

and/or training. This may include team mentoring approaches that consist of more than one faculty member, one or more professional staff members, and near-peer/peer mentors.

- Faculty relationship-building and collaboration across institutions, both in terms of joint research activities (especially research that can include student participation) and joint course design and course offerings. This may include dual-enrollment opportunities for students between institutions. It may also include the establishment of visiting researcher positions across partner institutions, labs, and/or industry for a specific period of time where faculty can gain exposure to new approaches to research, teaching, and student mentorship and sponsorship.

- Cross-institutional summer and academic-year outreach programs that invite students to engage in research and other academic experiences that help prepare them for graduate study. Such programs may also include advising and mentoring on how to prepare the most competitive application for graduate admission.

- Curricular development that increases the availability of courses to MSI students in order to prepare them for a graduate school trajectory and/or the transformation of existing curricula in order to ensure that it reflects more equitable, diverse, and inclusive content and pedagogy.

- Student support networks dedicated to individual or small groups of students such that each student has a cadre of trusted advisors and advocates to whom they can turn when (or before) academic, social, and financial pressures become barriers to success.

- Design and implementation of programs and policies that ease the pathway from undergraduate to graduate education, such as the streamlining of admissions practices for students in the project cohort. This may include funds for faculty development and training.

- Intensive hands-on laboratory experiences and mentorship across partnering institutions, and/or in business or industry labs that increase students' skills and confidence as STEM researchers.

- Redesigning institutional or departmental policies and practices around such areas as outreach and recruitment, admission, mentoring, and advising, so as to strengthen the pathway from MSIs to graduate programs, and to ensure the success of MSI students once in these programs.

- Explicit attention to the need for changes in departmental, school, college, and institutional policies, practices, and leadership that can ensure a culture and climate that is anti-racist, diverse, inclusive, and equitable.

Partnership Structures
Proposed partnerships among two or more institutions are expected to demonstrate many of the following characteristics:

- Clear evidence of planned or existing collaboration among STEM departments, programs, and/or schools in ways that are mutually beneficial across all parties—with the institution enrolling a high percentage of domestic Black, Indigenous, and/or Latina/o students taking a lead role in defining the project strategies, policies, and interventions.

- Project teams that are diverse by gender and race/ethnicity.

- A strong commitment from institutions to provide the necessary support for the participating domestic Black, Indigenous, and/or Latina/o students, ensuring that the project interventions reflect the principles of *intentionality*.[7]

- Customized interventions and supports based on students' backgrounds, needs, and social, cultural, and financial circumstances; this may include financial support for undergraduate and graduate student participants.

- A commitment to data collection, analysis, and reporting in order to evaluate the efficacy of the project.

- Potential to secure additional financial support and in-kind contributions from other funding sources (e.g., federal agencies, private philanthropies, institutional support) to sustain the initiative once Sloan Foundation support expires.

- Evidence of support from institutional leadership, including, but not limited to, the provost, academic deans, and department chairs.

- Evidence of change, or openness to change, on the part of the institution and its schools and departments, to prepare, recruit, enroll, and ensure the success of domestic Black, Indigenous, and Latina/o students in STEM graduate education.

PI Eligibility

Lead investigators from submitting and partner institutions should be at the full, associate, or assistant professor level, a department chair, or in an administrative role with high connectivity to academic positions. Such individuals should come from non-profit two- and/or four-year institutions, or

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[7] According to a recent report of the National Academy of Sciences, intentionality is a calculated and coordinated method of engagement used by institutions, agencies, organizations, and the private sector to effectively meet the needs of a designated population, in this case within a given higher education institution. Intentionality drives the creation of programs, practices, and policies that are tailored to recognize and address student differences across multiple dimensions: academic, financial, social, and with cultural mindfulness. Intentionality takes into account such student needs, as well as student strengths and attributes; in other words, students are not viewed as problems to fix but talent to cultivate. (National Academies of Sciences, Engineering, and Medicine. 2019. *Minority Serving Institutions: America's Underutilized Resource for Strengthening the STEM Workforce*. Washington, DC: The National Academies Press. doi: https://doi.org/ 10.17226/25257.)

organizations that serve higher education professionals or institutions. Submissions from diverse teams led by women and Black, Indigenous, and Latina/o individuals are strongly encouraged.

Submission Deadline

Submissions are due no later than May 1, 2022 by 5:00pm EDT. Materials must be integrated into a single PDF document and sent by email to dei@sloan.org, with the following subject heading: "STEM Pathways LOI—*Lead PI Last Name*". **Decisions will be announced by late June. If invited, full proposals will be due July 31, 2022.**

Submission Components

Complete submission packets must include the following components in this order:

1. **A 1-page Sloan Foundation Proposal Cover Sheet**, summarizing key project details. **Projects should have a proposed start date of December 1, 2022.** This document is available at: http://sloan.org/proposal-cover-sheet

2. **A Letter of Inquiry 5-7 pages in length (excluding budget table, budget justification, references, and PI CV(s)), in 11-point font, double-spaced.** Submissions should address the following questions, with the below categories serving as section headings and the questions serving as guidance for what to address in each section. **The bulk of the LOI (approx. 3 pages) should be devoted to project activities.**

   a. **Significance.**
      i. Understanding there is an equity gap that persists regarding who earns STEM graduate degrees, what is the specific problem or problems the project is aiming to solve on your campuses or through your organizations--and how do you know these are problems?
      ii. How are the problems rooted in systemic practices, policies, and cultural norms, and how does that inform your theory of change?

   b. **Project Activities.**
      i. What is the nature and scope of the planned activities for the project? (Include which individuals/institutions will be primarily responsible for which activities)?
      ii. How do you know these activities are the right activities for addressing the stated problem? How have your proposed activities been employed as solutions before (i.e., cite literature or other programs that demonstrate their use), and how will your approach differ from what has been previously employed?
      iii. How are these activities new or innovative for your institution? How are they innovative in your geopolitical/geographic context?
      iv. How are your activities not only seeking to create opportunities for individual students, but also seeking to transform the environment and culture to better serve such students over the long term—beyond the life of this project?

c. **Project Team**.
   i. How is the project team well-suited for this project? (Clearly indicate who are PIs and address how all involved parties are suited for collaboration?
d. **Partnerships**.
   i. What is the history of collaboration with participating institutions, and/or with MSIs at-large?
   ii. How will the project ensure mutual benefits across the participating institutions?
e. **Measures of Success**.
   i. How will you know if this project is successful?
   ii. What are your tentative plans to assess the success of the proposed activities?
f. **Additional Sources of Support**.
   i. What other sources or networks of support can the project leverage to ensure its success?
   ii. What other financial resources might the project leverage to ensure its sustainability?

3. **A Draft Budget Table and Budget Justification** for the proposed project, with sub-awards to collaborating institutions indicated where appropriate. The budget table document is available on the forms section of the Sloan website: https://sloan.org/grants/apply#tab-grant-forms. The Budget Justification (1-2 pages) should provide additional detail on expenses cited on the budget form (i.e., how the proposer arrived to these numbers).

   Allowable expenses will generally include:
   a. For faculty: salary, plus benefits for time spent on project and/or for course buy-out.
   b. For administrative support staff: salary, plus benefits, based on project time commitment.
   c. For graduate students, postdoctoral researchers, or undergraduate students: salary/stipend, plus benefits, based on project time commitment.
   d. Program expenses: mentorship activities, conducting collaborative research, faculty training, advisory committee honoraria, participant stipends, and other expenses.
   e. Workshop and research expenses: travel, meals, lodging, conference fees, room rentals, speaker stipends, audio-visual equipment, and dissemination expenses.
   f. Indirect overhead expenses, capped at 20% of direct costs.

4. **References/Bibliography List** (no more than 2 pages)

5. **Brief CVs** of key project leads and personnel (no more than 2 pages per person)

Review Process

Sloan Foundation staff and advisors will assess the submitted Letters of Inquiry. Selected submissions will then be invited to prepare full proposals for consideration. Invited full proposals will be further reviewed by a diverse set of subject matter experts, and proposers will then be asked to prepare a

response to reviews. Final award decisions for invited proposals are expected in November 2022. Questions about the call for LOIs can be sent to dei@sloan.org with the subject heading, "STEM Pathways."

About the Alfred P. Sloan Foundation

The Alfred P. Sloan Foundation is a nonpartisan not-for-profit, grantmaking institution dedicated to improving the welfare of all through the advancement of scientific knowledge. Established in 1934 by Alfred Pritchard Sloan Jr., then-President and Chief Executive Officer of the General Motors Corporation, the Foundation makes grants in four broad areas: direct support of research in science, technology, engineering, mathematics, and economics; initiatives to increase the quality and diversity of scientific institutions and the science workforce; projects to develop or leverage technology to empower research; and efforts to enhance and deepen public engagement with science and scientists.

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