



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, Latinx, and Indigenous Students

Submission Deadline: June 1, 2021

Overview

The DEI in STEM 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 *Equity-Minded Pathways to STEM Graduate Education* program 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 create and strengthen 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. We acknowledge that some innovative work is already underway across the country, but much more work needs to be done.

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).

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>

With these understandings, the Sloan Foundation is soliciting Letters of Inquiry (LOIs) for projects that seek to dismantle systemic barriers and create sustainable pathways to graduate education in the above disciplines for Black, Latinx, and Indigenous students. Compelling LOIs will result in the invitation of a full proposal. 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); projects that establish mutually beneficial partnerships between undergraduate and graduate programs at two or more institutions, at least one of which must be a MSI; and reform of graduate recruitment efforts, admission policies and processes, mentoring practices, and other gatekeeping (or gateway) structures within STEM graduate programs that open doors for students from MSIs. In short, we are looking to invest in efforts that seek to change the nature of graduate pathways at multiple levels, instead of reinforcing existing systems that fail to truly serve many Black, Latinx, and Indigenous students.

Background

The Sloan Foundation is seeking to diversify the STEM academic and non-academic workforce by significantly increasing the number of Black, Latinx, and Indigenous 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.³ 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 capacity building to serve historically underrepresented groups of students as they pursue master's and doctoral degrees in STEM;
- Enhance the quality of the undergraduate STEM experience such that it creates strong, evidence-based, and equitable systems that support the academic and non-academic preparation of Black, Latinx, and Indigenous 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.

One key area of focus for this work is on changing the actions—and the mindsets—of STEM faculty such that they demonstrate not only a willingness, but a commitment, to sustained and mutually beneficial partnerships with MSIs.

³ 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>

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 a small set of 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 creation, augmentation or scaling of significant formal systemic change partnerships/collaborations (Up to \$500,000 over 2-3 years).

We request only one letter of inquiry (as 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 2022 and 2023, during which time planning/seed grants funded in 2021 will be eligible for an award to scale their efforts. Over time, it is expected that the Foundation will seek to invest in successful efforts at more substantial grant amounts

Eligibility

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

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

Planning Grants to Two or More Institutions

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.

Institutional Partnerships and Collaborations

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 Black, Latinx, and/or Indigenous students. More specifically, partnerships should foster relationships between undergraduate programs and master's and/or doctoral programs. 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, are encouraged.

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). Projects with the lead PI residing at an MSI are encouraged.

Example Project Activities

Activities for which awards will be made 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; and building sustained social and academic support networks for students.

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 and 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 Black, Latinx, and/or Indigenous 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.”⁴

⁴ 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>

- 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.
- Cross-institutional mentorship and sponsorship support for students through the creation of formal mentorship and sponsorship programs and activities that involve research exposure and/or training. This may include peer mentoring or the mentoring of undergraduate students by Ph.D.-level students and postdocs.
- 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.
- 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.

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 Black, Latinx, and/or Indigenous population 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 underrepresented students of color, ensuring that the project interventions reflect the principles of *intentionality*.⁵
- Customized interventions and supports based on students’ backgrounds, needs, and social, cultural, and financial circumstances; this may include financial support for low-income undergraduate and graduate students.
- 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.

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

Submission Deadline

Submissions are due no later than June 1, 2021 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*”. **If invited, full proposals will be due September 1, 2021.**

⁵ 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>.)

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, 2021.** This document is available at: <http://sloan.org/proposal-cover-sheet>
2. **A Letter of Inquiry 3-5 pages in length (excluding budget table and other supplemental material), in 11-point font, double spaced.** Submissions should address the following questions, with each question serving as a section heading:
 - a. **Significance.** What is the specific problem the project is aiming to solve?
 - b. **Project Activities.** What is the nature and scope of the planned activities for the project? (Include which individuals/institutions will be primarily responsible for which activities)
 - c. **Project Team.** How is the project team well-suited for this project? (Address how the parties are also suited for collaboration)
 - d. **Partnerships.** How will the project ensure mutual benefit across the participating institutions?
 - e. **Measures of Success.** How will you know if this project is successful?
 - f. **Additional Sources of Support.** What other sources of support can the project leverage to ensure its success?
3. **A Draft Budget Table** for the proposed project, with sub-awards to collaborating institutions indicated where appropriate. This document is available on the forms section of the Sloan website: <https://sloan.org/grants/apply#tab-grant-forms>.

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 1 page)
 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 2021. 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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