



U.S. NATIONAL SCIENCE FOUNDATION
2415 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22314

NSF 24-116

Dear Colleague Letter: Science Education Alliance-Phage Hunters Advancing Genomics and Evolutionary Science in Two-Year Colleges (SEA-PHAGES-TYCs)

August 13, 2024

Dear Colleagues:

The U.S. National Science Foundation's (NSF) Directorate for STEM Education (EDU), Division of Undergraduate Education (DUE) invites two-year colleges to submit a request for support to enable full participation in the Howard Hughes Medical Institute **Science Education Alliance Phage Hunters Advancing Genomics and Evolutionary Science** (HHMI SEA-PHAGES) program¹. As part of this effort, this Dear Colleague Letter (DCL) announces a cooperative initiative between NSF EDU and the Center for the Advancement of Science Leadership and Culture (CASLC) at HHMI². By joining forces, HHMI and NSF aim to leverage their respective expertise, resources, and networks to catalyze and expand support of the next generation of scientists. This initiative aligns with the National Science Foundation's 2022-2026 Strategic plan³ by accelerating relevant STEM education enhancement efforts, cultivating a more inclusive and dynamic research ecosystem, and broadening participation in STEM.

BACKGROUND

The HHMI SEA-PHAGES initiative offers an authentic, yet accessible, course-based research experience (CRE) designed for students entering college-level science with limited or no prior research exposure. At the center of the SEA-PHAGES program is a community of STEM faculty who are supported to implement CREs collaboratively. Through this approach, the growing community of faculty members from over 150 institutions collectively engage over 6,000 undergraduate students in course-based research, support one another in the development of instructional practices to advance their pedagogy, and contribute to research projects aimed at enhancing undergraduate science education more broadly. The HHMI Science Education Alliance⁴, in partnership with NSF's IUUSE: Innovation in Two-Year

Colleges STEM Education (ITYC) program⁵, seeks to scale this transformative initiative to two-year colleges nationwide.

The ITYC program is a component of the NSF Improving Undergraduate STEM Education effort that is committed to supporting potentially transformative projects that seek to advance innovative evidence-based practices in undergraduate STEM education. Recognizing the importance of two-year colleges in the undergraduate education landscape⁶, the goals of the ITYC program are to: (1) center students in the effort to advance innovation, promote equitable outcomes and broaden participation for all students, and (2) enhance the capacity of two-year colleges to harness the talent and potential of their diverse student and faculty populations through innovative disciplinary, multi-department, and college-wide projects.

CALL FOR PROPOSALS

This Dear Colleague Letter encourages two-year colleges to submit planning proposals to the [ITYC program](#), that focus on the activities associated with adapting and implementing the discovery-based HHMI SEA-PHAGES curriculum in laboratory courses within a two-year college biosciences program. Planning proposals responding to this DCL should align with ITYC goals and request resources required to participate in the SEA-PHAGES program and effectively adapt and optimize a CRE approach in a new environment. Proposals may include, but are not limited to, faculty and laboratory technician supports, equipment needs, and additional supplies necessary for implementation of the SEA-PHAGES curriculum. Resources can also be requested for efforts that aim to implement the SEA-PHAGES approach in unique contexts with diverse student populations, expand CREs across additional biosciences courses, and development of mentorship models that support student success in a CRE learning environment. Projects that connect SEA-PHAGES courses to the local community, embrace students' lived experiences, and/or generate knowledge about factors associated with the impact of this approach in the context of two-year colleges are particularly encouraged.

SUBMISSION AND REVIEW

Before submitting a planning proposal, a one-page concept outline and a consultation with an NSF ITYC Program Director is required. Guidance on Concept Outlines can be found in Chapter I.D.1 of the *NSF Proposal & Award Policies & Procedures Guide* ([PAPPG](#)). If approved, the NSF Program Director will invite submission of the planning proposal by email. The email confirming approval must be uploaded as a document in the Program Officer Concurrence Email(s) section of the planning proposal.

SEA-PHAGES-TYC proposals must be prepared in accordance with the instructions for the planning type of proposal contained in Chapter II.F of the [PAPPG](#) and must be submitted through Research.gov. Proposers should select the current PAPPG as the funding

opportunity in Research.gov and direct the proposal to the ITYC program in the Division of Undergraduate Education (DUE) in the Directorate for STEM Education (EDU). The "Planning" type of proposal should be selected, and the proposal title should include "SEA-PHAGES-TYCs DCL:" after the prepended title "Planning:". Proposals should be submitted at the level of an ITYC planning proposal which has a funding limit of up to \$100,000 per year for a maximum duration of two years. Proposals may be submitted by two-year colleges of higher education (either Associates College or Baccalaureate / Associates Colleges) that are accredited and offer undergraduate educational degree programs in science, technology, engineering, and mathematics (STEM).

Before submission, proposers must submit a separate application to the HHMI SEA-PHAGES program, available on the [HHMI site](#). Proposals to this DCL are accepted at any time but must align with the HHMI application process. Proposals responding to this DCL should be submitted concurrently with an application to HHMI SEA-PHAGES or shortly thereafter. Two-year colleges that are currently members of the HHMI SEA-PHAGES community are encouraged to submit proposals to the regular ITYC program. Only institutions new to SEA-PHAGES are eligible for this funding opportunity.

NSF encourages proposals that include the participation of the full spectrum of diverse talent in Science, Technology, Engineering, and Mathematics (STEM) that attend two-year institutions.

Proposals submitted in response to this DCL will be shared with The HHMI SEA-PHAGES program team.

Principal investigators with questions pertaining to this DCL may contact:

- Kalyn Owens, Program Director, kowens@nsf.gov
- Connie Della-Piana, Program Director, cdellapi@nsf.gov
- Christine Delahanty, Program Director, cdehahan@nsf.gov
- Michael Davis, Program Director, mdavis@nsf.gov

Sincerely,

James L. Moore, III
Assistant Director
Directorate for STEM Education (EDU)

REFERENCES AND NOTES

- ¹ Leading the World in Discovery and Innovation, STEM Talent Development and the Delivery of Benefits from Research: [NSF Strategic Plan 2022-2026](#).
- ² Science Education Alliance-Phage Hunters Advancing Genomics and Evolutionary Science (SEA-PHAGES) Program: <https://seaphages.org/>.
- ³ Center for the Advancement of Science Leadership and Culture (CASLC) at HHMI: <https://www.hhmi.org/equitable-science>.
- ⁴ HHMI Science Education Alliance: <https://hhmi.org/programs/science-education-alliance>.
- ⁵ Innovation in Two-Year College STEM Education Program site: <https://new.nsf.gov/funding/opportunities/iuse-innovation-two-year-college-stem-education>.
- ⁶ Foley D. Milan L., Hamrick, K: National Center for Science and Engineering Statistics 2020. The Increasing Role of Community Colleges among Bachelor's Degree Recipients: Findings from the 2019 National Survey of College Graduates.