MSRI-UP 2026

MSRI-UP is an award-winning comprehensive Research Experience for Undergraduates (REU) program aimed at identifying talented students interested in careers in the mathematical sciences and providing research opportunities, mentoring, advising, and community support.

JUNE 13 - JULY 26, 2026 · BERKELEY, CA

Simons Laufer Mathematical Sciences Institute (SLMath)

MSRI-UP seeks undergraduates who have completed two years of university-level mathematics courses and would like to conduct research in the mathematical sciences.

This six-week summer program takes place at SLMath in Berkeley (formerly known as MSRI). Student participants will learn about a modern mathematical topic and conduct collaborative research, working with a community of mentors and academic peers. Participants will leave with the necessary skills and knowledge to conduct and present collaborative research and apply for graduate studies and fellowships.

2026 RESEARCH TOPIC

Numerical Methods for Differential Equations

The Onsite Director will be **Dr. Alexander Diaz-Lopez** (Villanova University). The Research Leaders will be **Dr. Johnny Guzmán** (Brown University) and **Dr. Maurice Fabien** (MIT / University of Wisconsin-Madison).

FINANCIAL SUPPORT

All participants will receive a $3,600 stipend, as well as lodging, meals, and roundtrip travel to Berkeley, CA.

slmath.org/up

SIMONS LAUFER MATHEMATICAL SCIENCES INSTITUTE

NSF National Science Foundation

SUPPORT

Each of the 18 students will:

- Participate in the mathematics research program under the direction of **Dr. Johnny Guzmán** (Brown U.) and **Dr. Maurice Fabien** (MIT/U. Wisconsin-Madison)
- Receive additional support of a dedicated postdoc and two graduate students
- Complete a research project done in collaboration with other MSRI-UP students
- Give a presentation and write a technical report on their research project
- Attend a series of colloquium talks given by leading researchers in their fields
- Attend workshops aimed at developing skills and techniques needed for research careers in the mathematical sciences
- Learn techniques that will maximize a student's likelihood of admissions to graduate programs as well as the likelihood of winning fellowships

Each student selected for this program will be introduced to a network of mentors and given advice and assistance in navigating the process of applying to graduate schools and fellowship programs.

All participants have the opportunity to present summer research at national conferences in the year following the summer program, and alumni will be contacted regarding future research opportunities.

NUMERICAL METHODS FOR DIFFERENTIAL EQUATIONS

Participants will have two projects: (1) To develop bound preserving numerical methods for flow in porous media, which is critical for addressing global challenges in energy and environmental science. (2) will investigate finite element exterior calculus (FEEC), which uses exterior calculus to study traditional finite element methods. FEEC has connections to algebraic topology and geometric integration.

Prerequisites: A Linear Algebra course is required; a Differential Equations course is encouraged. Ssme exposure to a programming language will be useful.

ELIGIBILITY

Applicants must have completed two years of university-level mathematics courses. Students who will have graduated by August 31, 2026 are not eligible. **Due to funding restrictions, only U.S. citizens and permanent residents are eligible to apply.** The program cannot accept foreign students regardless of funding.

SLMath and the NSF are strongly committed to expanding the opportunities in the mathematical sciences to everyone.

HOW TO APPLY

Applications for MSRI-UP will be done through the National Science Foundation's REU Common Application. The application period begins in mid-November of each year.

APPLICATION DEADLINES

Applications submitted by **February 15, 2026** will receive full consideration. (Applications submitted between February 15 and March 1, 2026 may still be considered in a second round of acceptances.) We expect to begin making offers for participation in late February or early March 2026.

"It was incredibly valuable to talk with so many amazing mathematicians — my peers, my mentors, the guests who came in, the grad students who were there, and other mathematicians who were working at SLMath."

"I really enjoyed the friendships I built here, and especially the close relationships within my advising group."