The National Science Foundation's Research Experiences for Undergraduates Program

Building the STEM evidence base and expanding capacity for monitoring and evaluation

The National Science Foundation's (NSF's) Research Experiences for Undergraduates (REU) program was created in 1987 to strengthen the science, technology, engineering, and mathematics (STEM) workforce. Building on research experiences as "one of the most effective avenues for attracting students to and retaining them in science and engineering, and for preparing them for careers in these fields,"[1] the program is designed to:

▶ **Foster student research** by giving students opportunities to conduct disciplinary or interdisciplinary research, facilitating student exposure to and induction into the practice of science, providing mentorship by scientists, and helping students build professional networks.

▶ **Promote diversity** by encouraging REU grantees—principal investigators at research centers, universities, laboratories, and other institutions—to recruit students traditionally under-represented in STEM (women, minorities, and people with disabilities), veterans, and students from institutions that offer them few opportunities to conduct research.

The America COMPETES Reauthorization Act of 2010 requires that students in the REU program "be tracked, for employment and continued matriculation in STEM fields, through receipt of the undergraduate degree and for at least three years thereafter" (Section 514[a][6] of Public Law 111-358). In response to this requirement, NSF commissioned two projects:

▶ **A feasibility study** to assess existing data sources and identify alternative and cost-effective approaches to tracking REU participants. The study team concluded that a new tracking system was needed to meet the congressional requirement. The study was conducted by the Science & Technology Policy Institute (STPI) of the Institute for Defense Analyses.[2]

▶ **An evaluation framework and pilot data system** that leverages existing data and enables NSF to comply with congressional requirements, sponsor future evaluations of the program, and support studies that contribute to the knowledge base on authentic research experiences. This project is being conducted by Mathematica Policy Research.

In consultation with an advisory board of national experts, the current effort to design an evaluation framework and pilot data system will engage the REU community. This initiative will seek input from NSF program officers across directorates, reach out to REU principal investigators (PIs) to participate in the pilot and inform them of progress at REU events (such as REU PI and leadership meetings), and collect data directly from REU applicants and participants, increasing data quality and reducing burden on REU sites.

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[1] Program solicitation NSF 13-542.

[2] Zuckerman, B., J. Doyle, A. Mudd, T. Jones, and G. Davis. "Assessment of the Feasibility of Tracking Participants from the National Science Foundation's Research Experiences for Undergraduates (REU) Sites Program." Final report. Washington, DC: STPI, July 2016.

Photo: REU participants at the Vanderbilt Institute of Nanoscale in Science and Engineering (reproduced with permission).

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