Jobs in science, technology, engineering, and mathematics—the STEM fields—are critical to the safety, security, and economy of the United States.

The President’s Council of Advisors on Science and Technology estimates that 1 million additional STEM graduates will be needed in the next decade to meet U.S. workforce needs. Two-year colleges are essential to supplying the U.S. workforce with qualified candidates. More than 50% of students start their academic careers at two-year colleges, however, only a small percentage of two-year-college STEM students are continuing on to four-year degree programs and employment in STEM disciplines.

The American Geophysical Union (AGU) is bridging this divide through URECAS, a program that supports undergraduate research to strengthen the role two-year-college Earth and space science students can play in the workforce.

The Problem

Scientific research helps two-year-college students succeed in completing their degrees, but there are challenges to starting and maintaining such programs.

- Lack of administrative support for research
- Failure to count research toward tenure or faculty professional development goals
- Limited time for research for both students and faculty (due to family and work obligations)
- A misperception that research is “too hard” or not important to students’ long-term career goals
- Insufficient funding to support research programs

The Solution

Helping two-year-college STEM students successfully enter the workforce requires that we:

- Galvanize a cultural shift that redefines two-year colleges as research-capable
- Infuse research across the entire curriculum of a two-year college science program
- Support student and faculty attendance at professional meetings, such as AGU’s Fall Meeting, to counter isolation and lack of exposure
- Build strong collaborations between two- and four-year colleges to ease the transfer process for students
- Address the diverse needs of students through financial, academic, and social support
- Fund two-year college research programs, as well as programs designed to facilitate transfer to four-year colleges

“The National Science Foundation recognizes that wasting talent is not an option—not if we are to meet the economic and other needs of the country, in competition and alliance with others across the globe.”

— Dr. Cora Marrett, Acting Director, National Science Foundation

http://urecas.agu.org
Supporting the STEM workforce pipeline by improving Earth and space science education at the K-12, undergraduate, and graduate levels.

Who We Are
AGU is dedicated to advancing the Earth and space sciences for the benefit of humanity through our scholarly publications, conferences, and educational outreach programs. Our 62,000 members represent 144 countries and span disciplines ranging from volcanology to planetary science and from geoscience education to hydrology.

Why We Matter
Currently, there is a national shortage of professionals in the Earth and space sciences. A little more than a quarter of a million geoscientists are working in the United States today. By 2021, that number will need to increase by nearly 20% to meet demand. Additionally, about half of the current workforce is within 10 years of retirement age. Given current graduation rates, the United States could be facing 150,000-200,000 unfilled geoscience jobs by 2021.

Through education- and career-focused events at AGU meetings, professional development workshops for teachers, special programs for high school students, awards for science educators, and other resources, AGU is leading the way forward in ensuring that there are enough Earth and space science professionals to meet society’s needs.

“I think AGU is doing a great job by putting this part of their mission forward. As a geoscientist by training, I can only applaud the organization for taking this leadership step.”

— Elizabeth Ambos, Executive Officer, Council on Undergraduate Research

What We Are Doing
AGU is taking a number of steps to solve the nation’s STEM workforce challenge by:

- Boistering professional development for K-12 teachers in the Earth and space sciences, which helps to keep K-12 students engaged
- Strengthening Earth and space science departments and undergraduate teaching at the college and university level to ensure that students graduate with degrees in science
- Helping AGU members participate in outreach activities and programs at all education levels (K-12 through graduate), ensuring that students—and their parents—learn about the value and excitement of Earth and space science
- Supporting national STEM education initiatives by providing input on educational standards, participating in task forces, and monitoring and informing legislative action
- Building the quantity and diversity of the Earth and space science workforce through special programming for faculty, members of underrepresented minorities, two- and four-year-college students, and K-12 students