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# First2 Network

Improving STEM Persistence in Rural First-generation College Students

Developing and maintaining a diverse, innovative workforce in the fields of science, technology, engineering and math (known as STEM) is critical to American competitiveness in the world, but national surveys report a current and future shortage of highly qualified STEM professionals. One problem is that more than half of all college students who declare a major in STEM fields drop out or change their majors in the first two years of their post-secondary education. This problem is particularly acute for first generation college students.

The First2 Network is a grassroots Alliance, aimed at improving the college enrollment rate and success of undergraduate STEM students, with emphasis on rural first generation students through their first 2 years of college. At the core of our shared vision to improve student STEM success is the assumption that **the students themselves should be co-creators of the solutions.**

In September 2018, First2 received a **National Science Foundation (NSF) INCLUDES award of \$7.15** million for the next five years. First2 is one of only seven NSF INCLUDES alliances funded nationwide. This funding, coordinated through the **West Virginia Higher Education Policy Commission (HEPC)**, allows us to develop a statewide network of innovative stakeholders who will collaborate to solve the STEM persistence problem. Through our pilot project, First2 learned of many complementary efforts and projects occurring around the state. The alliance will study, implement and improve these practices and disseminate them state-wide and beyond.

First2 Network:

- Provides early exposure to STEM research in 2-week internships for rising college freshmen STEM majors, and several upperclassmen to serve as mentors. External evaluation has revealed that this exposure had a positive impact on students' motivation to persist in their STEM majors.
- Supports student leadership and agency: First2 students routinely gather together for two major activities:
  - Peer Mentoring and STEM skills development – Our First2 students help each other— from hard math problems, to preparing a resume. They also educate us all about the challenges they are facing as they are facing them. Who better to affect change in the college culture than the students themselves?
  - Student Advocacy – First2 student leaders influence their institutions, policy makers and younger students. They inspire and educate K-12 students and meet with legislative and policy leaders to illuminate problems and suggest policy/practice changes to better support rural first- generation STEM student success.



**According to the students themselves**, the most effective components of the academic year activities were those in which students' voices have been elevated, through opportunities for peer-to-peer mentoring and advocacy work.

First2 Network members implement the proven methodologies of improvement science to study, improve and replicate promising programs that impact STEM persistence. Specifically, First2 will: 1) improve preparation for and transition to college; 2) replace ingrained institutional practices that stifle the

development of STEM self-efficacy and 3) develop a comprehensive plan to build a long-term alliance, which includes a **permanent hub organization at HEPC**.

Finally, First2 Network is conducting a rigorous educational research study aimed at advancing understanding of the factors affecting rural students' entry into and persistence in STEM career pathways. We hypothesize that our work will apply to improving persistence of all first-generation STEM students, not just rural students. We plan to disseminate the First2 model to other rural states to assist them in developing their own STEM-capable workforce.

**We are seeking partners who share our vision for a vibrant WV STEM workforce, and are willing to work with us to make it happen. JOIN US: [first2network.org](http://first2network.org)**

### **Award-winning project leadership and steering committee members currently include:**

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*NSF INCLUDES Alliance: Expanding the First2 STEM Success Network. Award Number: HRD-1834595; Principal Investigator: Sarah Riley; High Rocks Educational Corporation. Award Number: HRD-1834586; Principal Investigator: Jan Taylor; Higher Education Policy Commission. Award Number: HRD-1834601; Principal Investigator: Sue Ann Heatherly; Associated Universities Inc/National Radio Astronomy Observatory. Award Number: HRD-1834575; Principal Investigator: Erica Harvey; Fairmont State University. Award Number: HRD-1834569; Principal Investigator: Gay Stewart; Co-Principal Investigators: Roxann Humbert, John Stewart, Marjorie Darrah, West Virginia University*