

## Science, Technology, Engineering and Math (STEM) Education

The University of Idaho graduates more students in science, technology, engineering and math (STEM) disciplines than all the other Idaho institutions of higher education combined. But even this is not enough to keep up with the growing demand for a STEM-literate and STEM-capable workforce ([changetheequation.org/stem-vital-signs](http://changetheequation.org/stem-vital-signs)).

The Idaho STEM pipeline loses young people at every level of the education system. Low graduation rates from high school and college narrow the pipeline of students who can gain advanced STEM skills. Of those students who do graduate, few get a post-secondary degree or certificate in STEM.

The university is investing in research, teaching and outreach that work together to address this statewide and national skills gap.



### Research focus

The \$1.2 million University of Idaho-Micron STEM Research Initiative is just one of the research grants getting to the bottom of understanding what we can do differently to engage and prepare youth to pursue and succeed in STEM fields. This research program is the first of its kind to gather statewide data that will inform stakeholders regarding the attitudes and perceptions in Idaho communities that may shape choices students make concerning their educational and career pathways. This critical understanding will be used to inform interventions such as student activities and teacher preparation methods.

National Science Foundation-funded research at U-Idaho is focused on understanding and developing math reasoning skills in students in grades 4-12. Mathematics is continually cited as a critical barrier to student success in STEM disciplines. U-Idaho has invested in building a nationally recognized math education team that conducts cutting-edge research as well as teaches our next-generation workforce. The university is recognized in the state as a leader in math education reform.

### Teaching Focus

The University of Idaho is preparing K-12 teachers in the College of Education with the latest learning tools and methodologies to educate the next generation of STEM graduates. The college also is taking this knowledge to in-service teachers through various professional development venues.

U-Idaho was recently awarded a grant from the Albertson's Foundation to create of a technology learning and research center. The university envisions a technology-enabled, technology-infused space that serves as classroom, research laboratory, innovation center, library and professional development center.

But we don't stop with K-12 educators. Our own professors and lecturers are implementing best practices in teaching and learning with their undergraduate and graduate students. Immersing students in hands-on, relevant research experiences early in their journey through education, enhances their experience and increases likelihood of successful graduation and employment. Many of UI research grants from USDA, NASA, and NSF include a student learning component and engage undergraduates and graduate students alike in fulfilling research experiences.

### **Outreach Focus**

Outreach activities sponsored by or directed by the University of Idaho allow faculty and staff to directly engage with students across Idaho and the region. Informed by the research and teaching occurring at the university, these faculty and staff develop and deliver programs for K-12 students that raise awareness of, interest in, and preparation for STEM pathways.

Outreach activities also provide the unique opportunity to continue research efforts to understand what works and what doesn't. Assessment of these programs feeds development of new programs and modifications for existing ones. As an added benefit, they provide the opportunity for U-Idaho undergraduate and graduate students to get involved in educational activities. Programs like McCall Outdoor Science School (MOSS) and the NSF-funded Adventure Learning are examples of using Idaho as a learning laboratory to excite students.

### **Importance of continued funding**

Idaho faces unique challenges addressing the STEM skills gaps with a relatively small population spread across a large geographical region. Much of the population is located in isolated rural communities and a large percentage of the student population is comprised of low-income students, first-generation students or underrepresented minorities.

The University of Idaho is uniquely positioned with research and faculty expertise to address these issues by building programs that promote cultural and learning communities, specifically place-based, that enable these students to succeed.

Engaging youth and community leaders jointly in STEM issues of regional importance while providing unique learning opportunities is vital. Support for these programs is imperative for Idaho's continued economic prosperity.

For more information, please contact:

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