

# Barry looks to liven up courses

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**Kelly Barry, PhD, associate professor of biological sciences.**

Southern Illinois University Edwardsville's introductory biology courses are diverging from the common "cookbook" layout to offer students an authentic lab experience at the undergraduate level. SABRE, SIUE Authentic Biology Research Experience, is an initiative led by Kelly Barry, PhD, associate professor of biological sciences in the SIUE College of Arts and Sciences.

This academic year, Barry is working as a faculty fellow with the SIUE Center for Science, Technology, Engineering and Mathematics (STEM) Research, Education and Outreach. Her new approach to teaching science at the post-secondary level aims to sustain student interest and improve retention in STEM.

"This class is an introductory class in which students tend to struggle," Barry said. "It covers a large amount of material and often leads to the disenchantment of students, who then leave the STEM career paths.

"If we can get these students to continue past these introductory courses and develop the skills they need to persist in STEM, they'll have great employment opportunities in fields with competitive salaries. We need the infrastructure of these people. Society as a whole will benefit."

The SIUE STEM Center understands the significance of such a project. Its faculty research fellowship program provides modest financial support for faculty who have ideas for novel ways to improve STEM education.

"Dr. Barry's project builds on studies at other institutions, primarily large research universities, that have shown the value of integrating authentic research into large introductory science courses," explained Sharon Locke, director of the SIUE STEM Center. "This project is innovative in that it is studying course-based research experiences (CUREs) at a master's comprehensive university, and it includes a partnership with the NCERC (National Corn-to-Ethanol Research Center) at SIUE."

"By working with the NCERC, SIUE students will see scientists researching solutions to energy issues and they will become aware of the broad spectrum of biology careers beyond the medical field," Barry added. "It's exciting to expose them to some of that by having them do real research."

Implementation begins this semester with three lab sections focusing on algae biodiesel production.

"We will have an experimental group of students who will do the SABRE lab, while others, our control group, will still do the traditional labs," explained Barry. "We will collect data to validate whether this is truly increasing persistence in STEM.

"I am extremely excited about this opportunity to work more rigorously in evaluating science education. We'll be able to add valuable information to the body of knowledge on this research topic."

Barry hopes to secure a grant from the National Science Foundation to further support her research, an endeavor in which the STEM Center is providing assistance.

“The STEM Center funds pilot studies,” said Locke. “Then we collaborate with the fellows to prepare proposals to external funding agencies for additional research and institutionalization of effective STEM education practices.”

Central to SIUE’s exceptional and comprehensive education, the College of Arts and Sciences has 19 departments and 85 areas of study. More than 300 full-time faculty/instructors deliver classes to more than 8,000 undergraduate and graduate students. Faculty help students explore diverse ideas and experiences, while learning to think and live as fulfilled, productive members of the global community. Study abroad, service-learning, internships, and other experiential learning opportunities better prepare SIUE students not only to succeed in our region's workplaces, but also to become valuable leaders who make important contributions to our communities.