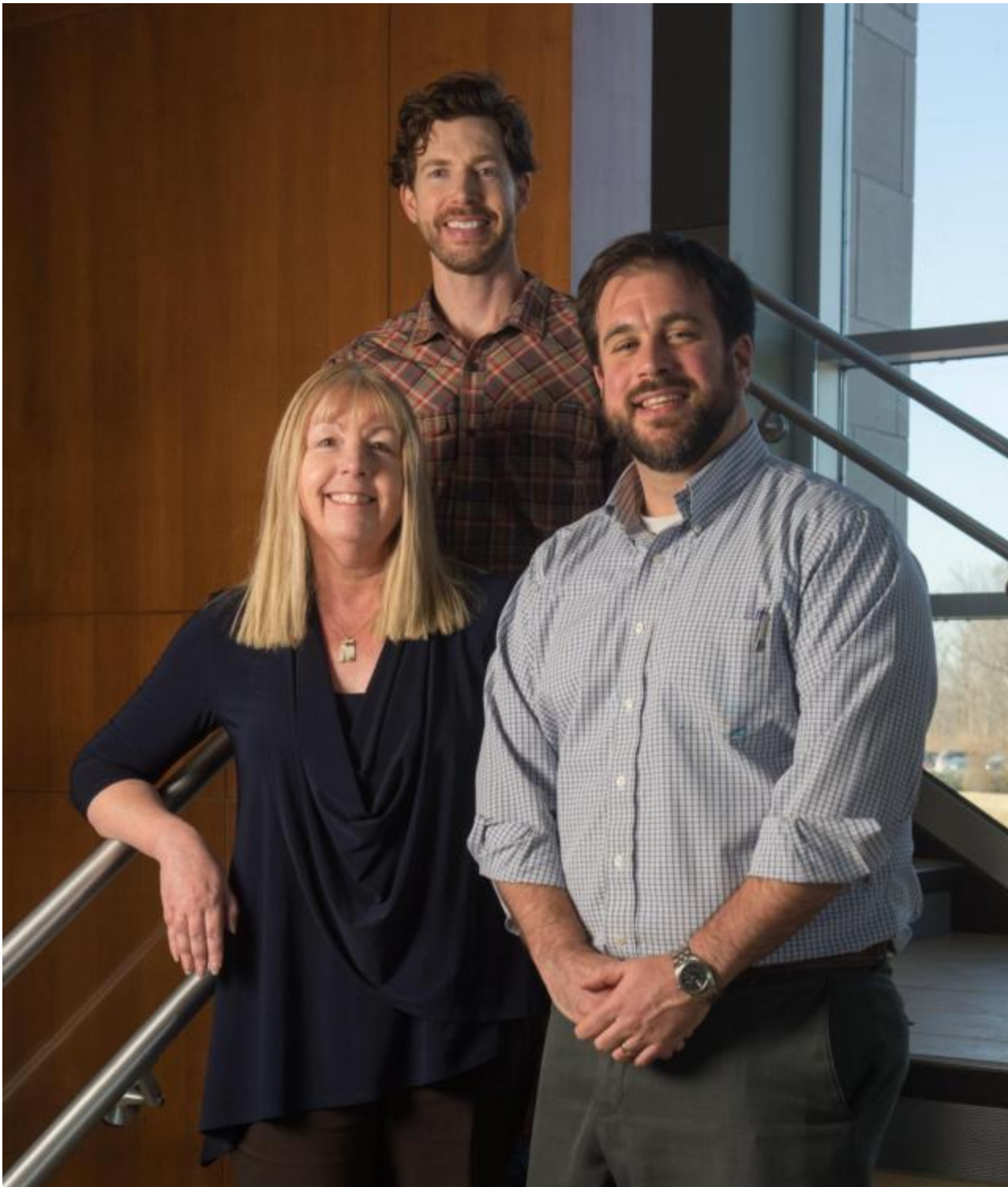


Adding to the acronym: NSF funds SIUE project to boost minority female interest in STEM+C

January 22 2018 2:49 PM



EDWARDSVILLE - The National Science Foundation (NSF) has awarded \$846,416 to Southern Illinois University Edwardsville to launch programming that will integrate computational thinking (CT) in after-school, student-centered learning in science, technology, engineering and mathematics (STEM) to strengthen minority girls' learning, and potentially alter career intentions and preparation.

The NSF Exploratory Integration (EI) grant supports *Exploring Global Challenges: A STEM+C Curriculum for Minority Girls*. The collaborative project involving SIUE, the [iBIO Institute EDUCATE Center](#) and the [East St. Louis Christian Activity Center](#), will implement and test the integration of new CT activities into a research-based STEM program designed for low-income, elementary age girls in East St. Louis.

“For a host of reasons, African American females are dramatically underrepresented in STEM fields,” said principal investigator (PI) Jesse Dixon, executive director of the SIUE East St. Louis Center (ESLC). “We believe providing hands-on, highly engaging learning experiences to this population will boost confidence and motivate interest in STEM and computer science, and increase their likelihood of pursuing careers in those fields.”

Project co-PIs include Sharon Locke, PhD, director of the SIUE STEM Center, Mark McKenney, PhD, associate professor of computer science in the SIUE School of Engineering, and Ann Vogel with the iBIO Institute EDUCATE Center.

McKenney and the SIUE STEM Center will lead the curriculum development of CT activities that will be integrated with the existing *Stellar Girls* curriculum.

“There is a recognized need for K-12 students to understand CT and STEM concepts in order to become successful citizens within the 21st century global economy,” Locke said. “However, many students, especially those from low-income, urban school districts, do not receive such curriculum. This project is at the forefront of improving students’ CT skills by embedding CT within STEM learning.”

Forty students at the East St. Louis Christian Activity Center will engage in the curriculum during four 10-week sessions over two years. They will complete projects that challenge them to find solutions for real world, global issues such as alleviating hunger, promoting human health, meeting the world’s energy needs and sustaining resources for future generations.

“Computational thinking is a fundamental tool in STEM fields,” explained McKenney. “This project will prepare students with foundational computational thinking skills required to succeed in STEM fields and will provide them with confidence to see themselves in those careers. Furthermore, we will gain insight into the development and delivery of CT curricula, and investigate models for expansion beyond the lifetime of this project.”

In the last year of the STEM+C project, Exploring Global Challenges activities will be implemented in the Chicago area, where the *Stellar Girls* curriculum was developed and continues to serve hundreds of girls.

“With the awarding of this grant, the National Science Foundation has demonstrated confidence in the East St. Louis Center’s effectiveness and powerful commitment to the children of East St. Louis,” Dixon said. “We’re bringing extraordinary minds together to develop a program that inspires learning and interest in STEM and computing careers while field testing and researching an after-school curriculum that could be replicated throughout the country.”

“We are grateful to benefit from the brain power of Dr. McKenney, as well as Dr. Locke’s wealth of experience in scientific research and her deep and authentic commitment to the children of East St. Louis,” he added. “We also owe a great deal of thanks to the iBIO Institute EDUCATE Center for trusting us to modify their highly successful, evidence-based STEM curriculum by adding CT activities. Finally, we are thrilled to bring this program to the Christian Activity Center, a pillar of the East St. Louis community with a relentless drive for improving the lives of their students and families.”

With a focus on empowering people and strengthening communities, the [SIUE East St. Louis Center](#) is dedicated to improving the lives of families and individuals—from pre-school through adult—in the Metro East region. The Center offers programs that give the community renewed hope and an opportunity to reach educational, career and life goals. It does so by providing comprehensive programs, services and training in the areas of education, health, social services and the arts.

The Southern Illinois University Edwardsville [Center for STEM Research, Education and Outreach](#) comprises an independent group of researchers and educators, innovating ways to engage students and the public in science, technology, engineering and math (STEM). Within the SIUE Graduate School, the Center brings together research faculty, graduate students and practitioners to conduct education research. The Center contributes educational expertise to SIUE undergraduate classes and provides professional development for K-12 teachers. The Center boasts a significant library of equipment and resources, which are available for loan at no cost to campus and regional instructors. For more information, visit <https://www.siue.edu/stem/about.shtml> or contact STEM Center Director Sharon Locke at [\(618\) 650-3065](tel:6186503065) or stemcenter@siue.edu.

The [SIUE School of Engineering](#) offers one of the most comprehensive and affordable engineering programs in the St. Louis region with eight undergraduate degrees, five master’s degrees and two cooperative doctoral programs, all housed in a state-of-the-art

facility. Students learn from expert faculty, perform cutting-edge research, and participate in intercollegiate design competitions. Companies in the metropolitan St. Louis area provide students challenging internships and co-op opportunities, which often turn into permanent employment. All undergraduate programs are accredited by their respective accreditation agencies.