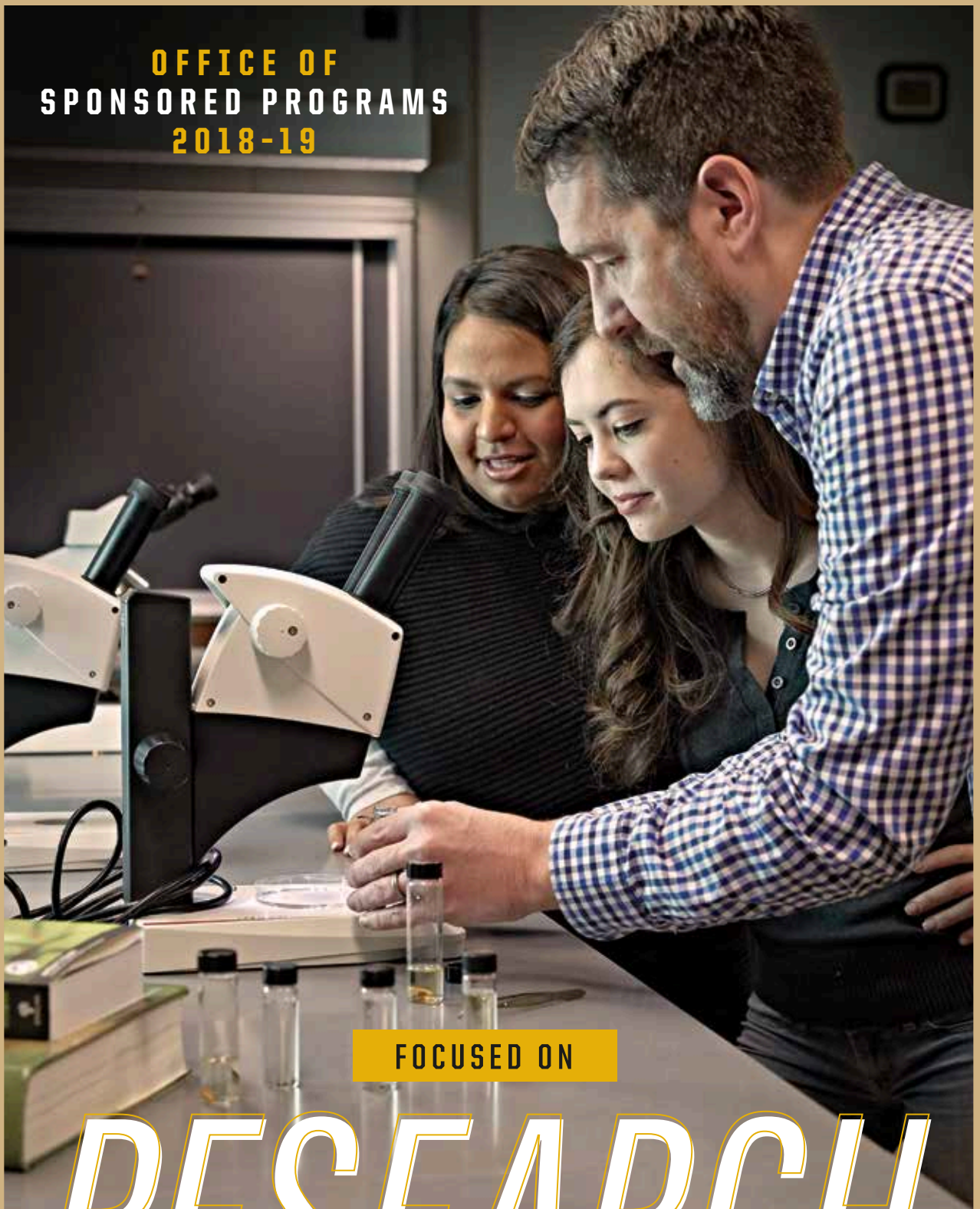


OFFICE OF  
SPONSORED PROGRAMS  
2018-19



FOCUSED ON

# RESEARCH

PURDUE UNIVERSITY FORT WAYNE

**SUPPORTING**

# *KNOWLEDGE*

**E**xternally funded research—financial support of faculty and student projects—is essential to the success of Purdue University Fort Wayne, the region, and beyond, as it allows for the continued pursuit and application of knowledge.

The benefits of externally funded research are vast. Discoveries from research projects lead to innovation, improve society, and support business and industry. These projects connect the university with the community and the world, laying the groundwork for immediate and future improvements. Students who take part in experiential learning opportunities help increase the university's rates of engagement, retention, and graduation. Research projects also create different teaching opportunities, expanding the learning experience for students and improving the community as a whole.





# Professor's Microscopic Work Causes Huge Changes in Crop Growth

TANYA SOULE | ASSOCIATE PROFESSOR OF BIOLOGY

Using chemical fertilizers is a popular way to improve crop growth, but there are concerns about their impact on the environment. Enter biofertilizers, a mixture of living microorganisms, as an organic alternative.

A biofertilizer contains a mixture of over 20 different microorganisms, so strict regulations require that the microorganisms be verified to ensure that they comply with various federal, state, and international standards.

To develop a solution to this challenge, biofertilizer producer Biodyne USA partnered with Tanya Soule, associate professor of biology, through a Technical Assistance Agreement. Soule is a natural fit for this project, as she and her students routinely use molecular tools to identify and quantify bacteria in environmental samples.

“Since we cannot physically see the individual microorganisms, this is essentially like going into a microscopic rainforest and identifying a specific organism based just on the presence of its unique DNA signature,” Soule explained. “Our studies enable us to not only identify specific microorganisms from a mixed community but also quantify them to see how their numbers change in response to different conditions.”

Soule's work on biofertilizers will help promote their approval and use—and give farmers a tool that enhances plant health and crop yields without increasing chemical pollution.

TANYA SOULE (RIGHT)  
ACTIVELY INVOLVES  
STUDENTS IN HER  
RESEARCH PROJECTS.



MATTHEW PERKINS COPPOLA'S  
LATEST PROJECT PROVIDES  
DIRECT FEEDBACK TO TEACHERS  
ABOUT HOW STUDENTS  
INTERACT WITH NEW  
LABORATORY MATERIALS.

# Teaching Teachers, with a Little Help from Students

**MATTHEW PERKINS COPPOLA** | ASSISTANT PROFESSOR OF SCIENCE EDUCATION

To keep high school science classes current in a changing world, teachers regularly attend conferences and workshops to build new skills and explore new ways of teaching. But these events typically happen away from students, leaving the teacher without direct feedback on how students will interact with the material.

Research conducted by Matthew Perkins Coppola, assistant professor of science education and a former high school physics teacher, is changing this situation. Coppola has shown how pairing teachers and students together in a professional development experience benefits teachers by providing immediate insights into student learning. His research was funded through the William F. and Edith R. Meggers Project Award of the American Institute of Physics, a grant program that promotes the improvement of high school physics teaching in the United States.

As one teacher who took part in Coppola's research said, "I loved seeing my own students grow in their confidence as the week progressed. The questions they asked helped me know where to look for misconceptions. They learned brand-new skills and crushed it the next time they needed to use them."

# A Mentor Changes the World— and His Students—through Chemistry

STEVEN STEVENSON | PROFESSOR OF CHEMISTRY

Steven Stevenson, professor of chemistry, recently received his third National Science Foundation award during his tenure at Purdue Fort Wayne. The project, funded by the Chemical Structure, Dynamic and Mechanisms B Program of the Division of Chemistry, used Stevenson's newly discovered chemical separation approach to isolate and characterize new tubular-shaped carbon molecules that are part fullerene and part nanotube. These "FullerTubes" are largely unexplored and have potential applications in photovoltaics, heat transfer, medicine, and electronics.

Stevenson—the university's 2014 Outstanding Research Award recipient—is a big proponent of mentoring students, and his FullerTube project is a perfect example of this. Ryan Koenig was a high school student in 2017, when he became involved with Purdue Fort Wayne's High School Research Intern Program and Stevenson took him under his wing.

"I developed a tailored research project to teach Ryan [now a Purdue Fort Wayne student] the appropriate facets of research," Stevenson explained. "He learned valuable lab skills with a focus on fostering scientific inquiry and education in the research setting. His project led to data used in my NSF proposal."

Giving students real-world research experience—it's one of the many ways that Stevenson and his colleagues help prepare their students for the future.



STEVEN STEVENSON'S (RIGHT)  
APPROACH TO MENTORING  
PROVIDES MUTUAL BENEFITS TO  
BOTH RESEARCHER AND STUDENTS.

# SPONSORED RESEARCH FUNDING BY SOURCE AND RECIPIENT

JULY 1, 2018-JUNE 30, 2019

## Grant Sources

Federal .....	\$1,459,368	(60%)
State and Local Government .....	\$332,360	(14%)
Purdue University Fort Wayne .....	\$266,427	(11%)
Industrials and Applied Research .....	\$245,276	(10%)
Purdue University .....	\$79,995	(3%)
Foundations .....	\$65,532	(2%)
<b>TOTAL .....</b>	<b>\$2,448,958</b>	

## Funding for Academic or Administrative Unit

Vice Chancellor for Academic Affairs .....	\$1,134,123	(46%)
College of Arts and Sciences .....	\$707,341	(29%)
College of Professional Studies .....	\$346,160	(14%)
College of Engineering, Technology, and Computer Science .....	\$197,915	(8%)
Vice Chancellor for Student Affairs .....	\$37,064	(2%)
College of Visual and Performing Arts .....	\$23,255	(1%)
Doermer School of Business .....	\$3,100	(< 1%)
<b>TOTAL .....</b>	<b>\$2,448,958</b>	

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