



The Wabash Valley Section of the American Chemical Society,  
the Indiana State University ACS Student Members,  
and the ISU Faculty Center for Teaching Excellence present:

## **Getting Students into Undergraduate Research: What Else is Out There Other Than Apprenticeship Models?**



**Dr. David F. Bahr**

*Head and Professor of Materials Engineering  
Purdue University*

(please see reverse side for abstract and bio)

**Tuesday, September 17, 2019, 5:30 PM**

Indiana State University Science Building, Room S018  
600 Chestnut Street, Terre Haute, IN 47809

(For a map, see: <https://www.indstate.edu/sites/default/files/media/Documents/PDF/campus-map.pdf>)

The presentation by the guest speaker is free and open to the public. Dinner will be at Logan's Ribeye Restaurant, 100 S Fruitridge Ave at ~7:00 pm. Please RSVP by email to Dr. Richard Fitch before the end of day on Monday, September 16<sup>th</sup> to make reservations for dinner.

(Email: [rfitch@indstate.edu](mailto:rfitch@indstate.edu), Phone: 812.237.2244)

## **Getting students into undergraduate research: What else is out there other than apprenticeship models?**

**Dr. David F. Bahr**

*Head and Professor of Materials Engineering*

*School of Materials Engineering, Purdue University*

What's the carrying capacity of getting undergraduates involved in STEM research? If it's to be more than a couple students per faculty, there is a need to explore models other than the apprentice-mentor method. Three instructional formats devoted to preparing STEM students for successful research endeavors will be presented. All formats are intended to reach undergraduate students early in their academic careers. The three formats include: a semester long seminar, a one-week faculty led "boot camp", and a 2½ day peer mentor led short course. The programs began at Washington State University, University of Central Florida, and the University of Alabama, and have been widely distributed through the national Council on Undergraduate Research. The topical content and activities cover the following areas: resume building, finding a faculty mentor, reading and analyzing journal articles, understanding the different types of literature available, using campus library resources, performing a literature review, discussion of intellectual property, tips on effective presentations, and career guidance. This project is motivated by the need for students to acquire appropriate skills in order to be effective in conducting research under faculty supervision. This project has been a collaborative effort between three institutions with experience in teaching preparatory research skills in the different formats. A pre- and post-class concept inventory has been developed that can be used to assess improvements in student understanding of research skills and concepts. Initial results show similar gains in conceptual awareness at each institution. This suggests that the educational models may be transferrable and easily adopted by other institutions. Focus group discussions indicate that students are pleased with the programs and consider them useful, especially for students preparing to conduct research. To date, the team has impacted over 500 students and a web site is available for disseminating project information.