Best Practices for Face-to-face and Online Undergraduate Research*

Conference Tutorial

Karen E. Works
Computer Science
Florida State University
Panama City, FL 32405
keworks@fsu.edu

Abstract

Undergraduate research is beneficial to students in so many ways. Crowe and Burke [1] found that it increases the number of students who go to graduate school and that students who participate report a higher level of satisfaction with their undergraduate experience. It has been shown to increase student engagement [2]. Retention in computing majors [3] and increase in problem solving skills [4] have been correlated with students who participate in undergraduate research. Given all the benefits to students, how do you get started with undergraduate research at your college?

Dr. Karen Works has co-chaired the student research symposium at Florida State University on the Panama City campus since Fall 2020. The symposium supports face-to-face poster sessions, online pre-recorded presentations, and online video conferencing presentations. In addition, she has been a research mentor for undergraduate computer science students outside of her courses, both online and face-to-face.

In this tutorial, she will share her experience in coordinating and hosting a student research symposium on the FSU Panama City campus discussing both the challenges and rewards in working with students on undergraduate research projects, to encourage others to become research mentors. Best practices to support undergraduate research in different modalities, namely face-to-face and

on-line, will be presented. This tutorial session will introduce how instructors can get undergraduate research started with their students and how to coordinate research symposiums on their campuses. The session will be interactive with discussion activities.

References

[1] Mary Crowe and David Brakke. Assessing the impact of undergraduate-research experiences on students: An overview of current literature. *Council on Undergraduate Research Quarterly*, 28(4), 2008.

[2] Marcus Fechheimer, Karen Webber, and Pamela B Kleiber. How well do undergraduate research programs promote engagement and success of students? *CBE—Life Sciences Education*, 10(2):156–163, 2011.

[3] Kamen Redfield, Sukham Sidhu, Zackary Glazewski, Cynthia Lee, Diba Mirza, and Christine Alvarado. A longitudinal study of the relationship between early undergraduate research and academic outcomes in computer science. In *Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 1*, pages 1119–1125, 2024.

[4] Mostafa Seifan, Neha Lal, and Aydin Berenjian. Effect of undergraduate research on students' learning and engagement. *International Journal of Mechanical Engineering Education*, 50(2):326–348, 2022.