

Structuring Successful Undergraduate Research Experiences

Presented by Korine Wawrzynski, Ph.D. and Justin Micomonaco, Ph.D.

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3405 Engineering Building

Abstract: Incorporating undergraduates into your research agenda can yield enormous learning and professional development gains for students. However, working with young researchers often requires a significant investment of time and resources to ensure a productive arrangement. This session will tackle some of the challenges related to mentoring undergraduate researchers. Specifically, we will present findings from a multi-year study on the characteristics of undergraduate research experiences that are linked to successful student outcomes. For example, the data provide guidance on: How frequently do I need to meet with my mentee? What type of mentoring relationship is necessary? Does the faculty member need to be the primary mentor? Building off these data, we will then discuss various models for successfully incorporating undergraduates into research teams, including specific examples from STEM faculty. The goal is to help participants conceptualize how to structure research opportunities that are productive for both the student and research mentor.

Biographies: Korine Steinke Wawrzynski is the Assistant Dean for Academic Initiatives and Director for Undergraduate Research in the Provost's Office at Michigan State University (MSU). She also serves as an adjunct Assistant Professor in the Student Affairs Administration master's degree program. Dr. Wawrzynski is an active member of the Council on Undergraduate Research, where she serves as a Councilor and has co-chaired two national conferences on undergraduate research. Her research interests include innovative learning opportunities for undergraduate students, the experiences of women leaders in higher education, and collaborative partnerships between academic and student affairs. She has earned a bachelor's degree in English from Monmouth College, a master's degree in College Student Personnel, and a doctorate in Higher Education Administration, both from Bowling Green State University. Dr. Justin Micomonaco, Director of Assessment & Research, Honors College Dr. Micomonaco leads assessment and research efforts at the Honors College. In addition, he oversees the college's undergraduate research programs. His research agenda currently focuses on undergraduate research, including the impact of participation and the characteristics of faculty mentors. In the past, he has conducted research on STEM education initiatives, living-learning communities, institutional change and organizational development.

Video: <https://vimeo.com/112056579>

Notes

- One definition of **undergraduate research**: when a student makes an original contribution to a field of study
 - o Not always true, they are often treated as an employee; sometimes these undergraduate research opportunities are meant as learning experiences

- Three levels
 - Level 1 (employee)
 - Level 2 (apprentice)
 - Level 3 (research fellow)
- Why undergraduate research has an impact on students?
 - It's hands on, it takes significant time and effort, it involves meaningful interactions, it involves regular and constructive feedback, and there are opportunities to synthesize and apply learning from multiple contexts
- Undergraduate (UG) research experiences help students clarify their career goals, increase their persistence to graduation, increase their likelihood to attend graduate school, and increase their interest in STEM careers
- Structure of UG research experiences; what about the structure matters?
 - Who is the primary mentor (faculty vs. non-faculty)
 - *Conclusion:* faculty mentor did not need to be the primary mentor to result in good UG research outcomes
 - Frequency of meetings
 - *Conclusion:* this matters, (one time per week is better than one time per month)
 - Individual vs. group meeting
 - *Conclusion:* individual meetings were not necessary
 - Hours spent on research
 - *Conclusion:* more hours spent on research led to better outcomes
- Termination of students is possible
 - Explain to student why he/she is being fired
 - Specific, written feedback and personal conversation
 - Highlight strengths and areas for improvement
 - Be straightforward and specific
 - Don't push the problem down the road
- Dr. Stephanie Watts
 - As a mentor, show students that you are super excited about what you do
 - As a student, you have to be ready to fail in the lab
 - As a mentor, make the undergraduate students a part of your family
 - Faculty benefits?
 - An extended family
 - Students bring programs and ideas into a lab, they teach mentors things
- Student support
 - Faculty post UG research positions on venture (venture.msu.edu/)
 - UG research workshops for students (urca.msu.edu/event)
 - UURAF, spring research forum (urca.msu.edu/uuraf/)
 - MidSURE, summer research forum (urca.msu.edu/midsure)