



SIGMAA IBL Fall Speaker Series 2022

45 minute workshop + 30 minutes networking

[HTTPS://CONVERSE.ZOOM.US/J/92396141820](https://converse.zoom.us/j/92396141820)

ONLINE ACTIVITIES FOR IN-PERSON OR REMOTE MULTIVARIABLE CALCULUS COURSES

 **THURSDAY**
AUG 25

 **TIME**
5 PM EDT

SPEAKER
**ATHENA
SPARKS PELFREY**



USING INQUIRY TO TEACH MATHEMATICS AND THINKING

 **THURSDAY**
SEPT 29

 **TIME**
11 AM EDT

SPEAKER
**CAROL
SCHUMACHER**



INCORPORATING COGNITIVE PSYCHOLOGY BASED STRATEGIES FOR MATH INSTRUCTION

 **FRIDAY**
OCT28

 **TIME**
12 PM EDT

SPEAKER
SHEILA TABANLI



GROUPWORK, EQUITY, AND STUDENT BUY-IN

 **WEDNESDAY**
NOV 30

 **TIME**
3 PM EST

SPEAKERS
**ROBIN WILSON
AND NINA WHITE**





SIGMAA IBL

Fall Speaker Series

2022

ONLINE ACTIVITIES FOR IN-PERSON OR REMOTE MULTIVARIABLE CALCULUS COURSES

ABSTRACT

Students of multivariable calculus often struggle to visualize the mathematical concepts presented by an instructor. With the free online Desmos Activity Builder, we have developed numerous activities to help students visualize, investigate, and master various course concepts. In this presentation, we will explore these activities from the perspectives of both the student and the instructor. We will discuss the creation, implementation, and efficacy of these activities in courses we have conducted both in-person and remotely.

SPEAKER

ATHENA SPARKS PELFREY

Athena Sparks Pelfrey received her Ph.D. from CU Boulder in 2020 and is currently a Teaching Postdoc at Colorado School of Mines. She is developing activities for the Calculus sequence aimed at increasing student engagement with technology and collaborative learning. In her spare time, she enjoys hiking with her husband and her one-year-old daughter.

INCORPORATING COGNITIVE PSYCHOLOGY BASED STRATEGIES FOR MATH INSTRUCTION

ABSTRACT

There is a large body of research on the importance of teaching students explicitly about evidence-driven strategies for learning effectively. The science of learning is a sub-section of cognitive science that aims to discover how people learn and develop mastery in a discipline. Incorporating instructional strategies stemmed from cognitive science can enable educators and learners to prosper in their academic goals. As educators, to further support our students, specifically during an era of learning loss caused by the pandemic, we strive to explore methods to close the gap between the research on learning and implementing the outcomes of this research in our classrooms. The presentation will include an instructional framework that can be adopted with low-stakes assessments to foster students' self-regulated learning experiences.

SPEAKER

SHEILA TABANLI

Sheila Tabanli earned her Ph.D. in Computer Science at the Missouri University of Science & Technology. She is currently an Assistant Teaching Professor of Mathematics at Rutgers where her interests are developing student-centered instructional strategies to improve student engagement and learning outcomes. Sheila has extensive experience designing and incorporating alternative assessments to offer inclusive learning practices. She recently developed a novel course and teaches study strategies stemmed from cognitive psychology to address the Math achievement gap. Sheila also participates in multidisciplinary research projects to investigate methods that contribute to undergraduate student success. Sheila designs and presents hands-on workshops to faculty and students about her instructional framework on how to effectively incorporate cognitive science principles into Math teaching and learning. She is a fellow of Rutgers OASIS Leadership & Professional Development program, MAA NJ-NExT, and Rutgers-New Brunswick Provost Teaching Fellowship Program.

USING INQUIRY TO TEACH MATHEMATICS AND THINKING

ABSTRACT

Clear reasoning, insightful and creative thinking, and precise articulation of ideas are among the most important skills that someone can gain from a college education. Because these activities lie at the heart of mathematics, we are particularly well placed to help our students acquire them. And teaching through inquiry is an especially effective way to place clear thinking at the center of a mathematics course. There is a deep question at the heart of these assertions. How do we help students learn to think like mathematicians? Unfortunately, thinking mathematically often comes naturally to people who get Ph.D.'s in mathematics. We may have no idea how we learned to think this way, and we are often unaware of how much is going on in our own heads when we attack a mathematical question. In this workshop, we will examine specific scenarios and insights that might help us to unravel this important question.

SPEAKER

CAROL SCHUMACHER

Carol Schumacher teaches mathematics at Kenyon College. She received her Ph.D. from UT-Austin. Schumacher is the recipient of the MAA Ohio Section Distinguished Teaching Award and the author of *Closer and Closer: Introducing Real Analysis* and *Chapter Zero: Fundamental Notions of Abstract Mathematics*. Both of these books are written to support inquiry in the classroom. She is active in the Mathematical Association of America and served a term as vice president.

GROUPWORK, EQUITY, AND STUDENT BUY-IN

ABSTRACT

The goal of this session is to give workshop participants an opportunity to reflect on some of the things that can go wrong when students work together in groups in the classroom. We'll look at a (enacted) video of groupwork not going well, and then consider different ways instructors can support more equitable and productive groupwork from Day 1.

SPEAKERS

NINA WHITE

Drawing on 15 years classroom experience teaching college mathematics with inquiry, Nina White has been supporting other instructors in teaching with inquiry since 2015, and in 2018 joined the AIBL Workshop Developers team to provide this support nationally. She also leads a regional community of instructors using inquiry in Michigan (amiibl.org), is director of a Math Teachers' Circle for Detroit-area teachers, and founded a local Learning Community for Inclusive Teaching (LCIT) in Mathematics at University of Michigan.

ROBIN WILSON

Robin Wilson is a Professor of Mathematics at California Poly Pomona where he has taught mathematics courses at all levels since 2007. Dr. Wilson is currently Co-Director of the California Math Project at Cal Poly Pomona, a program that supports the professional development of K-12 teachers. He has been teaching using inquiry based learning since 2017 and began leading professional development for instructors in 2019 when he joined the AIBL Professional Development Workshop team. His current research interests include both low-dimensional topology and math education. He will be joining the Department of Mathematics at Loyola Marymount University in Fall 2022.

Please contact Lee Roberson at Lee.Roberson@colorado.edu for questions.
Check out our website: <http://sigmaa.maa.org/ibl/>