

IBL SIGMA PRESENTS

SPRING 2023 WORKSHOP SERIES

Zoom Link:

<https://tinyurl.com/IBLSIGMAA-Spring2023>



Presentations on Thursdays by

Martha Byrne

January 26 @ 4 pm EST

Edward Burger

February 23 @ 11 am EST

Daniel Reinholz

March 30 @ 2 pm EDT

Aditiya Adiredja

April 27 @ 2 pm EDT

For questions, please contact Lee Roberson: Lee.Roberson@colorado.edu

Martha Byrne - Playing Math: Transferring Authority to Students

Inquiry Based Learning centers student ideas and approaches, but students themselves are often resistant to this new paradigm of learning. Accustomed to I do - We do - You do, lecture, and other instructor-based pedagogies, students are used to accepting that ultimate mathematical authority is provided by instructors and textbooks, and the idea that they themselves hold mathematical authority is new, uncomfortable, and disconcerting. In this workshop, I'll briefly present some of the ways I've used games and mathematical play to help students discover their own voice in mathematical exploration, and we will work together to find ways to adapt games and other mathematical play to your own classes.

Edward Burger - Behind the Scenes: Fostering effective thinking through IBL (tough) love

Where does the transformational teaching, learning, and personal growth happen through an inquiry-based learning experience? Often (and ideally) it is outside the classroom. Here we'll discuss what that ambient space might look like—and how to create and personalize it—so that all students of all backgrounds can find their voices, discover their individual creativity, and flourish in our classes and far beyond.

Daniel Reinholz - Imbuing inquiry-based instruction with equity: The importance of social marker data

Research clearly shows that Inquiry-Based Learning has a positive impact on student learning overall. However, a variety of recent studies also show how these benefits can be inequitable, with students from advantaged groups disproportionately benefitting from these novel learning environments. To address this pressing issue, my team has been working with the EQUIP observation tool (<https://www.equip.ninja>) to provide customized feedback to instructors on patterns of inequity in student participation. We have found that this approach makes measurable differences in mitigating inequities in student participation. We argue that a key feature of our approach is social marker specificity, the idea that instructors need data about student participation tied directly to their social identities (e.g., race, gender, disability). I discuss the impact of this approach on postsecondary mathematics instruction and provide concrete teaching techniques that participants can implement in their classrooms.

Aditiya Adiredja - Responding to students' "mistakes:" an anti-deficit perspective with IBL

During this session we will explore a range of possible types of mathematical mistakes that can happen in an IBL classroom. How we respond to students with their mistakes is critical in engaging with anti-deficit work in the classroom. Taking seriously the IBL principle of being interested and honoring student thinking, we explore ways to identify and build on productive ideas within the mistakes. Doing so offers an important opportunity for instructors and students to challenge deficit narratives that exist about students' mathematical abilities. It also has the potential to mitigate broader oppressive narratives about particular groups of students.

THURSDAY, 1/26
4 PM EST

THURSDAY, 2/23
11 AM EST

THURSDAY, 3/30
2 PM EDT

THURSDAY, 4/27
2 PM EDT



Daniel Reinholz

Daniel L. Reinholz is an Associate Professor in the Department of Mathematics and Statistics at San Diego State University and is also a Provost's Professor of Equity in Education. Their research focuses on disability justice, faculty development, and systemic change in STEM.



Martha Byrne

Martha Byrne considers herself a NorthWestern New Mexichusornian because Northern California, Western Massachusetts, and New Mexico are all places she feels at home. After earning her bachelor's degree in mathematics, she taught in a variety of secondary settings in Massachusetts and then earned her PhD at the University of New Mexico. She's now an Associate Professor of math and math education at Sonoma State University in California where she's been since 2016.



Edward Burger

Dr. Edward Burger is President and CEO of the St. David's Foundation, and President Emeritus of Southwestern University as well as Professor Emeritus of Mathematics and a leader on thinking, innovation, and creativity. Previously he was the Francis Christopher Oakley Third Century Professor of Mathematics at Williams College. He has delivered over 700 addresses worldwide at venues including Berkeley, Harvard, Princeton, and Johns Hopkins as well as at the Smithsonian Institution, Microsoft Corporation, the World Bank, the International Monetary Fund, the U.S. Department of the Interior, the U.S. Department of the Treasury, the New York Public Library, and the National Academy of Sciences. He is the author of over 70 research articles, books, and video series (starring in over 8,000 on-line videos), including the book *The 5 Elements of Effective Thinking*, published by Princeton University Press and translated into over a dozen languages worldwide. His latest book, *Making Up Your Mind: Thinking Effectively Through Creative Puzzle-Solving*, also published by Princeton University Press, was on several of Amazon's Hot New Releases lists.



Aditiya Adiredja

Adi Adiredja is an associate professor of mathematics education in the math department at the University of Arizona where he regularly teaches linear algebra and number theory. He received his undergraduate and master's degree in math, and a Ph.D. in math education from University of California, Berkeley. His work examines the role of race and gender in undergraduate mathematics education. As a teacher researcher he investigates how deficit social narratives along with our perspectives on knowledge and learning impact the way that we look at mathematical sense making by students of color.