

IBL SIGMAA presents:

2022

# Spring Workshop Series

[tinyurl.com/IBL-SIGMAA-Spring-2022](https://tinyurl.com/IBL-SIGMAA-Spring-2022)

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Zoom Link



## Our Speakers:

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**SU DORÉE**

Augsburg University

**THURSDAY, JANUARY 27  
3:30 PM EST**

The Active Learning Pedagogy Sequence (the ALPS): A Model for Expanding the Use of Active Learning Structures in the College Mathematics Classroom

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**GEORGY KUSTER**

Christopher Newport University

**THURSDAY, FEBRUARY 24  
3 PM EST**

Connecting Teaching and Learning: Using Student Thinking as the Bridge

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**SANDRA LAURSEN**

University of Colorado Boulder

**THURSDAY, MARCH 31  
4 PM EDT**

Back to the future: Teaching with inquiry during and beyond the pandemic

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**VICTOR PIERCEY**

Ferris State University

**TUESDAY, APRIL 26  
3 PM EDT**

Writing Materials for Learning with Inquiry

## **JANUARY 27: THE ACTIVE LEARNING PEDAGOGY SEQUENCE (THE ALPS): A MODEL FOR EXPANDING THE USE OF ACTIVE LEARNING STRUCTURES IN THE COLLEGE MATHEMATICS CLASSROOM**

How can we create a classroom where all of our students are engaged, working hard, asking and answering each other's questions, learning mathematics deeply, and wanting to learn more? For many of us, active learning strategies are an essential part of the answer. In this workshop we present a framework, called the Active Learning Pedagogy Sequence (the ALPS), for understanding the ease/difficulty of implementing many different active learning structures. We will identify and try our hand at structures from several of the levels of the ALPS – both to play with mathematics ourselves and to think more about inquiry-based mathematics education. Whether you are just getting started in active learning or an “old pro” looking for new ideas, come ready to try your hand at an array of different active learning structures.

### **SU DORÉE**

Workshop leader Dr. Suzanne Dorée is Professor of Mathematics and Chair of the Department of Mathematics, Statistics, and Computer Science at Augsburg University in Minneapolis, Minnesota where she has taught since 1989. She enjoys teaching students at all stages of their mathematical development using pedagogies that support active, inclusive, and inquiry-based learning. Dr. Dorée was recognized for her teaching in 2019 when she received the MAA Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics. Dr. Dorée has a Ph.D. in Mathematics from University of Wisconsin. She dabbles in mathematical research on the state graphs of games, puzzles, and other dynamic processes, but her primary scholarship is in teaching and learning. Long active in the MAA, Dr. Dorée currently serves as Co-chair of the Transforming Post-Secondary Education in Mathematics (TPSE-math) Teaching Strategies and Practices Subgroup. She frequently runs professional development workshops for new mathematicians (and old) on active learning, teaching conjecturing (and other topics in inquiry-based learning), and mathematical speaking.

## **FEBRUARY 24: CONNECTING TEACHING AND LEARNING: USING STUDENT THINKING AS THE BRIDGE**

Traditionally learning has been treated as a natural consequence of teaching. The goal of education however, is not teaching, rather the goal of education is learning. That is, as educators our role is to impact the minds of our students. By placing the focus of education primarily on learning we centralize the students in the classroom, and we can begin to aim toward intentionally engaging in teaching practices that support thinking and learning. This shift in focus requires a careful analysis of what exactly we desire our students to understand, how that understanding develops in our students, and how we as teachers can support its development. In this workshop, we will discuss the principles and practices of Inquiry-oriented Instruction, a student-centered form of instruction that relies almost entirely on student thinking and shares many characteristics with IBL. The goal of this workshop is to help instructors develop and/or implement lessons that foster and utilize student thinking to support learning.

### **GEORGE KUSTER**

George Kuster is an assistant professor in the Department of Mathematics at Christopher Newport University. His research focuses on the teaching and learning of mathematics. Some past projects include how students use variational reasoning in differential equations, characterizing Inquiry-oriented Instruction, and helping teachers implement student centered teaching methods.



## **MARCH 31: BACK TO THE FUTURE: TEACHING WITH INQUIRY DURING AND BEYOND THE PANDEMIC**

As we pass the two-year mark since the pandemic arrived in the US and instigated the Great Online Pivot in higher education, we can also look back on a great variety of teaching experiments – successful or not – that these two years represent. In the spirit of not letting a good crisis go to waste, I will draw on data about mathematics instructors' teaching practices to propose some important lessons about inquiry teaching learned from our collective crash course in trying to do it online. Using as guidance the four pillars of inquiry-based mathematics education, we will reflect together on what we did, what we learned, and how we can use these lessons as we move forward into a teaching and learning future that, whatever it looks like, will not look like the past.

### **SANDRA LAURSEN**

Sandra Laursen maintains interests in both research and practice in science and mathematics education. As senior research associate and director of Ethnography & Evaluation Research at the University of Colorado Boulder, she leads research and evaluation studies focusing on education and career paths in STEM fields. Her research interests center on professional preparation for teaching, advancement and visibility of women and people of color in STEM careers and academia, and organizational change in higher education. She is also interested in inquiry-based teaching and learning, and in all ways to improve STEM education in and out of the classroom. She has a Ph.D. in chemistry by way of U. C. Berkeley and is proud co-champion of the 2021 Grinnell College Alumni Spelling Bee.

## **APRIL 26: WRITING MATERIALS FOR LEARNING WITH INQUIRY**

You want to use inquiry in your course, but you can't find an activity to fit one of your learning objectives, or you can't find any inquiry materials for your course at all. How do you get started writing your own materials?

In this presentation, we will walk through and practice developing course materials ranging from single activities to an entire course. Along the way, we will identify resources we have for support as well as discuss some course design principles.

### **VICTOR PIERCEY**

Dr. Victor Piercey is a professor of mathematics and the Director of General Education at Ferris State University in Big Rapids, Michigan. He holds a J.D. from Columbia Law School and a Ph.D. in mathematics from the University of Arizona. His teaching focuses on quantitative reasoning and actuarial science. He is the lead author of two unpublished inquiry textbooks (available to share): Quantitative Reasoning for Professionals (for a 2-semester hybrid quantitative reasoning/algebra sequence) and Financial Mathematics for Actuaries.

