

FALL 2026

SIGMAA IBL VIRTUAL WORKSHOP SERIES



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Join us each month on Zoom for our fall lineup of virtual workshops, hosted by the Special Interest Group of the MAA on Inquiry-Based Learning!

WEDNESDAY

**AUG 26
2PM EDT**

Knots & Tactile Intuition

Where does mathematical intuition come from? We hone our ability to understand mathematical objects through taking classes, studying, and researching, but we can also learn mathematics on an intuitive level using our five senses. A more sensory, embodied approach helps the process of mathematical discovery flow more easily and gives us a more nuanced understanding of deep truths. We will see several examples of how tactile intuition can connect with mathematical ideas in the case of knot theory. Hopefully, you will take inspiration from these activities to develop sensory, intuition-building activities for your own fields of study.

Allison Henrich is a professor of mathematics at Seattle University and editor of MAA FOCUS. She is coauthor or coeditor of several books, including *An Interactive Introduction to Knot Theory*, *Living Proof: Stories of Resilience Along the Mathematical Journey*, and *Navigating the Math Major: Charting Your Course*. She is excitedly anticipating the release this November of her forthcoming book with artist Esther Loopstra, *Think Like an Artist, Create Like a Mathematician*.



Allison Henrich

THURSDAY

**SEPT 17
1PM EDT**

Inquiry at the Intersection: IBL as the Engine of High-Impact Practices

The [AAC&U's High Impact Practices](#) – first-year seminars, study abroad, internships, capstones – are increasingly tied to institutional priorities and assessment tools like NSSE. But what makes them high impact? We'd argue its inquiry: the same collaborative problem solving, productive struggle, and student-centered design that IBL practitioners already know and use. In this session we'll explore how IBL maps onto the HIP framework, look at some examples from mathematics, and discuss how making this alignment explicit can help departments advocate for resources and support. Then we want to hear from you. We'll close with a community discussion and the beginning of a collective effort to gather short vignettes that capture IBL in action – especially where it connects to High-Impact Practices. Come ready to share your own stories and examples.

Vicky Klima is Associate Vice Provost for the Honors College and a professor of mathematics at Appalachian State University. She chairs the High-Impact Practices Working Group within the Committee on the Undergraduate Program in Mathematics of the Mathematical Association of America. Her teaching has become increasingly inquiry-based over the years, and she is especially interested in helping students experience mathematics as something to explore rather than memorize. Through her work in Honors, she now gets to think about inquiry across disciplines and is curious about how these ideas show up in High-Impact Practices like research, internships, and capstones.



Vicky Klima

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FRIDAY
OCT 23
3PM EDT

Hands-on classroom activities using 3D models and visualization for multivariable calculus

Students often find the transition from two-dimensional to three-dimensional thinking in multivariable calculus challenging. Computer visualization and tactile models can help bridge this gap and deepen students' spatial understanding of concepts. CalcPlot3D is a free, web-based applet for 3D graphing that is easy for students and instructors to use due to its code-free, menu-driven interface with fillable textboxes, dropdown lists, and checkboxes. In this presentation, I will show demonstrations that instructors can use to illuminate concepts and visualizations that students can easily create themselves. In addition, I will discuss several classroom activities that incorporate 3D-printed models, allowing students to physically explore concepts in small groups. Together, these tools provide engaging ways for instructors to support student learning and help cultivate stronger geometric intuition in multivariable calculus.

Shelby Stanhope is an Associate Professor of Mathematics at the U.S. Air Force Academy where she has taught since 2018. Her primary work focuses on multivariable calculus instruction, where she aims to support students' spatial understanding of concepts using computer visualization and classroom activities with 3D models. Her work in this area has been supported by two NSF grants, and her innovative teaching was recognized with the MAA's Henry L. Alder Award for Distinguished Teaching by a Beginning College or University Mathematics Faculty in 2024. She enjoys collaborating with fellow educators to continually improve teaching and learning in undergraduate mathematics.

I'll Be Learning Through Modeling

We engage in many examples of modeling, both in calculus and in differential equations coursework, which we have used and published in a career of over 50 years. We believe mathematical modeling is an excellent example of Inquiry Based Learning for students who must Inquire into the very situation and relevant disciplines of the situation, filtering out useless information and focusing on useful material. Students need to construct a model Based on assumptions and reasonableness of the situation at hand. Finally, student Learning, which will serve them well in any attempt to use or apply their mathematics, is deeply learned through their own discovery, application, iteration, and success.

Brian Winkel studied pure mathematics for his PhD (1971) in ring theory and then moved to applied mathematics almost immediately thereafter as he found that students were drawn to applications, both for their intrinsic values and intrigue as well as the fact that they answered their question, "Why am I studying this mathematics?" Along the way he founded journals Cryptologia (1977) and PRIMUS (1990) - both freely available to MAA members, and SIMIODE (2011) - in support of modeling first approach to teaching differential equations. He writes articles, develops Modeling Scenarios, speaks and leads workshops, and has authored an MAA book in support of using modeling in mathematics instruction. He very much enjoys meeting folks who are considering this modeling first approach or are fully committed to doing so.

TUESDAY
NOV 17
4PM EST

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