

Using AI Chatbots to Support Instructional Planning and Reimagine STEM Education

The infusion of Artificial Intelligence (AI) into mathematics education has ignited both excitement and debate, highlighting the need for understanding its potential and pitfalls. Past experiences with new technologies like calculators and smartphones have shown us that initial worries about how the technologies will help students cheat or detract from what students “need to learn” can give way to innovative new approaches for education. Eventually, we adapt and begin to leverage these new tools for learning. In this workshop, we will refocus our attention on a different question: “How can I leverage AI to support all my students’ learning today?” and will also explore the potentially transformative role of AI across STEM and the broader educational landscape.

AI technologies can empower educators to design personalized learning pathways, cater to student individual needs, and cultivate a deeper engagement with mathematical concepts. This workshop will examine the practical application of Generative AI to support teachers in planning mathematics instruction in diverse K-12 classrooms. Participants will learn concrete strategies for using AI chatbots to generate lesson ideas, differentiate instruction, create assessment items, and develop resources that address the unique learning profiles of their students.

Building upon this practical foundation, we will then consider the broader implications of AI in STEM education. Arguably more transformative than previous technologies, AI has the potential to reshape the traditional relationships between mathematics and other disciplines. We will explore how AI can facilitate interdisciplinary projects, allowing students to apply mathematical concepts in novel contexts.

Finally, the workshop will engage participants in a thought-provoking discussion on how AI might reshape education and teacher education in general.

Grade band: K-12 (general audience is fine)