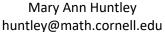# Mathematics Teacher Professional Development Workshop (virtual)
January 25, 2025

Offered by the Cornell University Department of Mathematics as part of MATH 4980/5080, together with the NYS Master Teacher Program & the Teacher Center of Central Westchester

Mary Ann Huntley	Betsey Schuhle	Toni Gamils
huntley@math.cornell.edu	betsey.schuhle@cortland.edu	tgamils@teachercentercw.org

9:00 – 9:10 am	**Welcome & Overview**
9:10 – 10:25 am	**Math Medic** **Gabriela Babcock** (West Genesee High School) Math Medic is an online platform that supports high school teachers with curricular activities, pacing guides, and workshops. It offers lessons for courses ranging from Algebra 1 to AP Statistics and Calculus, all built around the "experience first, formalize later" approach. This teaching method emphasizes student engagement and collaboration, promoting deeper mathematical understanding. In this session, we will experience a lesson and explore the resources Math Medic provides.
10:30 – 11:30 am	**Math Schema** **Helene Alalouf** (independent consultant) We have often heard, "We need to get students to be thinkers of mathematics, not just doers of mathematics." Do you and your students know that in mathematics, word problems can be identified in one of six schemas? Schema-based instruction (SBI) is a method of teaching students to solve word problems by identifying the underlying mathematical structure of the problem and using an appropriate solution strategy. A schema refers to the structure, not the operation! When students know how to identify the schema, they can visually represent the structure in order to construct an equation. Learn how to apply a problem solving strategy for all students' access and success with schema instruction.
11:30 am – 12:00 pm	**Break/Lunch (lunch provided for those attending at SUNY-Cortland)**
12:00 – 1:15 pm	**Probabilistic Inference and Data Science** **Vikram Krishnamurthy** (Cornell University) Data science and machine learning are areas with significant hype. I will explain some elementary mathematical ideas in probabilistic inference using examples in data science. Topics covered will include exploratory data analysis, linear classifiers, least squares inference, and human interpretation of probability to show how a few simple unifying principles can yield a useful understanding of many concepts in data science.
1:15 – 2:25 pm	**Using Generative AI to Support Instructional Planning** **Irina Lyublinskaya** (Columbia University) The infusion of Artificial Intelligence (AI) into mathematics education has ignited both excitement and debate, highlighting the need for understanding of 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 let's refocus our attention on a different question: "How can I leverage AI to support all my students' learning today?" AI technologies can empower educators to design personalized learning pathways, cater to individual needs, and cultivate a deeper engagement with mathematical concepts. We will examine the infusion of AI into math education with the hands-on focus of using Generative AI to support teachers in planning mathematics instruction in diverse classrooms.
2:25 – 2:30 pm	**Closing**

Modality: Virtual (SUNY-Cortland School of Educ. Rm. 1101 is available for those who wish to learn with others)

Registration: https://ecornell.cornell.edu/portal/cornell-math-workshop/   **Deadline:** 6 pm Tuesday 1/21