Mathematics Competency Professional Development Seminars

Manhattanville College
Barbara Allen-Lyall, Ph.D.

Mathematics Seminars

Problem Solving as an Instructional Strategy

Develop vital skills for teaching critical thinking across the curriculum through mathematics problem solving. Recognize and construct connections across mathematical ideas as you solve unique, real-world problems from counting methods; algebraic thinking; geometry; and part-whole themes. Examine connections between real problem-solving tasks and listening, speaking, reading, and writing. Identify and create materials and assessments for students with a range of abilities.

Geometry and Measurement: Aligning Teacher Understanding with Student Learning

Examine a variety of geometry topics set forth by the NCTM. Experience lessons that illuminate the importance of conceptual understanding that supports burgeoning student skills through elementary school and beyond. Learn how geometric thinking can be developed according to the Van Hiele model. Explore the nature of conjecture and learn to use engaging technology.

Number Operations and Algebraic Thinking (Part 1)

Focus on methods and materials for teaching important mathematics that take shape in the younger grades. Importantly, these critical topics must often be reexplored later in elementary school. Teachers often ask, *What is the best way to reteach so my students develop stable math ideas*? Learn to use concrete and representational materials in novel ways that align with mathematics cognition. Understand research based instructional strategies that effectively move learners through conceptual understanding toward strong mathematics understanding. Develop an affinity for independent thinking and varied ways of approaching real problem solving. This is the first course in the number operations and algebraic thinking sequence.

Number Operations and Algebraic Thinking (Part 2)

Extend understanding of methods from Part 1 and experience updated concrete materials for teaching elementary school mathematics. Learn to use models and methods to engage children and support their learning well beyond the elementary years. Understand more research-based instructional strategies that effectively move learners through conceptual understanding toward enhanced mathematics habits of mind. Continue developing independent thinking and varied ways of approaching real problem solving. This offering extends topics learned in Part 1.

Probability and Statistics

Learn about fundamental concepts and major tools in the mathematics of chance. Topics illuminate the K-6 NCTM content strands and include understanding, representing and exploring linear and non-linear data from real-world examples; randomness; sampling; and estimation. Applications will connect theory with examples relevant to elementary students and their teachers.

Teaching Diverse Mathematics Learners

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Investigate mathematics content, content language, assessment, and instructional strategies from the research literature in support of childhood mathematics learning. Socioeconomics, culture, gender, individual learning differences, and language will be considered.

Teaching Mathematics with Technology

Explore technology to acquire and teach new content knowledge about important topics in childhood mathematics learning. Learn to use new media and software tools to deepen your knowledge of a significant topic in mathematics education and plan for classroom instruction building on that knowledge.