PBS TeacherLine New York

online solutions for teacher professional development

MATH

MATH FALL & WINTER COURSE LISTINGS

MATH120: Fostering Cooperative Learning, Discussion, and Critical Thinking in Elementary Math (Grades 1-5): Highly-developed collaborative and critical thinking skills are what your students need to meet standards and perform in high-stakes testing. Expand your collection of strategies for sharpening these skills using classroom technology. Discover activities designed to support collaboration and problem solving within the curriculum while addressing National Council of Teachers of Mathematics (NCTM) standards. Classroom Link-Access to students recommended. PBS Classroom Link courses ask learners to implement lessons with their class or with a small group of students (options for learners without access to students are available. (30 hours: Fall, Winter)

MATH160: Gender Equity in the Mathematics Classroom (Grades 4-8): Does your learning environment support math success for boys and girls? This course introduces techniques to evaluate your teaching style for gender bias while exploring strategies to increase gender equity in a standards-driven instructional setting. To complete the course, you'll develop a project that creates or maintains gender-equitable mathematics curricula. (30 hours: Fall)

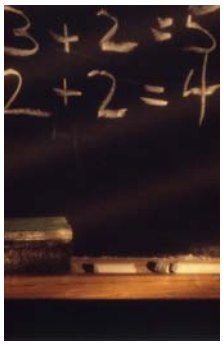
MATH165: Enabling Students with Special Needs to Succeed in Math Class (Grades 4-8) : Make mathematics accessible and understandable for all students, including those with disabilities. The Individuals with Disabilities Education Act (IDEA) mandates equity so that, whenever possible, students with disabilities learn in the same classrooms and with the same curricula as their peers. In this course, you will learn how to adapt your own curricula and work with special needs teachers to help your students succeed in the classroom. As your final task, you will develop a plan that builds accessibility strategies into your daily teachings. (30 hours: Fall, Winter)

MATH171: Proportional Reasoning Grades (6-8): Target middle school students' misconceptions about proportionality, as you learn new ways to teach ratio, proportion, and percents. After exploring various student approaches to proportion problems, and collaborating with other course participants, you'll be prepared to craft a lesson plan designed to teach a concept of proportion using your new knowledge. (15 hours: Winter)

MATH181: Math in Everyday Life (Grades K-5): Make mathematics "real" for your young students with a fresh look at problem solving, calculators, and the Internet in the classroom. Review the National Council of Teachers of Mathematics (NCTM) Calculator-Usage and Problem-Solving Standards for a framework to design lesson plans, address content, and meet state standards. Then, develop a "walking field trip" through tasks found in students' daily lives. (15 hours: Fall, Winter)

MATH211: Just the Stats: Data Analysis (Grades 6-8): Learn to evaluate and select appropriate Web-based activities that help students learn data collection and analysis using National Council of Teachers of Mathematics (NCTM) standards as your guide to the ways technology can enhance the subject. You'll then be able to develop data analysis lessons that successfully integrate technology. (15 hours: Winter)

MATH216: The Odds Are Good: Probability (Grades 6-8): We'll bet that we've got what you're looking for! Discover techniques to develop lessons about probability that meet the National Council of Teachers of Mathematics (NCTM) standards, use technology as a teaching tool, and incorporate new pedagogical strategies for teaching probability to middle school students. (15 hours: Fall)



MATH221: <u>Count on It: Number Sense (Grades K-5):</u> Make sense out of "number sense," as you discover the role it plays in students' mathematical development and the impact it has on their future performance. Identify effective assessment strategies; examine lesson plans, Web resources, and the National Council of Teachers of Mathematics (NCTM) standards. (15 hours: Fall)

MATH226: <u>Ready to Teach Fractions: Part 1 (Grades 4-6):</u> Unlock the mysteries surrounding children's struggle with fractions. Through the work of the Rational Number Project (RNP), you will view fraction number sense as an extension of whole number sense, and become familiar with the Lesh Translation Model. As the cornerstone of this course, the practical and research-based RNP fraction curriculum will be made available for classroom implementation. (15 hours: Fall, Winter)

MATH231: <u>Ready to Teach Fractions: Part 2 (Grades 4-6):</u> Build on the understanding you gained in Ready to Teach Fractions Part 1, the prerequisite course focused on developing meaning for fractions and working with concrete models for equivalent fractions. In Part 2, you'll learn more about the Rational Number Project (RNP) philosophy for addition, subtraction, multiplications, and division concretely and meaningfully. As the cornerstone of this course, the curriculum will provide you with instructional activities to help students operate with fractions involving addition, subtraction, multiplication, and division. Ready to Teach Fractions Part 2 is an ideal "next step" to help students overcome the fear of fractions. (15 hours: Fall)

MATH246: <u>Rational Numbers, Fractions, Decimals, and Percents (Grades 6-8):</u> Help your middle schoolers unravel the mysteries of rational numbers, fractions, decimals and percents. Using sample problems, you will build your understanding of how students approach their study, and learn practical, proven ways to redirect their thinking. For a final project, you will create a rational number lesson plan that includes a student assessment component. (15 hours: Fall)

MATH250: <u>Understanding Numbers and Operations: Addition and Subtraction (Grades PreK-3):</u> Lay the foundation that your students will build on to meet mathematical standards for years to come. Learn to teach “mental arithmetic” to enhance your students’ understanding of addition and subtraction. Develop your understanding of computational strategies by observing students, exploring lesson plans, and examining Web resources. Design, implement, and assess a numbers and operations lesson that combines technology, manipulative, and effective pedagogical strategies as your final project. Classroom Link-Access to students recommended. PBS Classroom Link courses ask learners to implement lessons with their class or with a small group of students (options for learners without access to students are available. (30 hours: Fall, Winter)

MATH410: <u>Seeing Math™: Linear Functions (Grades 6 – 12):</u> Discover a fresh approach to teaching linear functions through the use of real-world problems that generate varied approaches and solutions. Learn how multiple representations and solutions strengthen students’ understanding of functions, equations, and problem solving. (30 hours: Winter)

MATH415: <u>Seeing Math™: Transformations of Linear Functions (Grades 6 – 12):</u> Learn how to help students grasp the symbolic representations of functions, while representing families of linear functions in multiple formats. Observe and discuss videos of students to gain insight into student thinking and explore strategies to address their misconceptions. Acquire interactive software and activities to use in the classroom that demonstrate the link between symbolic forms of linear functions and graphical forms. (30 hours: Fall)

MATH420: <u>Seeing Math™: Linear Equations (Grades 6 – 12):</u> Develop strategies for teaching students how to represent and manipulate linear equations. Examine the rationale behind the symbol manipulation that maintains an equality or corresponding inequality. Use symbolic and graphic techniques to solve equations. (30 hours: Winter)

MATH430: Seeing Math™: Proportional Reasoning (Grades 6 – 12): Discover techniques to successfully guide your students through the critical transition from elementary mathematics and computing to the more complex, proportional thinking of algebra. Adapt problems from your curriculum to different learning styles using graphing, multimedia technology, and other strategies. You will also become familiar with assessment techniques that distinguish between true proportional reasoning and the appearance of understanding. Classroom Link—Access to students recommended. PBS Classroom Link courses ask learners to implement lessons with their class or with a small group of students (options for learners without access to students are available. (30 hours: Winter)

MATH440: Seeing Math™: Transformations of Quadratic Functions (Grades 9 – 12): Work with families of quadratic functions to help your students understand what makes a function quadratic. Explore the information conveyed by polynomials, vertex and root forms, and assist students in shifting between object and process viewpoints. As a final project, you'll create a lesson plan or action plan applying the strategies learned. (30 hours: Fall)

MATH455: Seeing Math™: Data Analysis (Grades 6 – 12): "What do the measures of central tendency—mean, median, and mode—tell you about the data?" Teach your students how to answer that question and encourage them to look beyond calculations and individual data points. Explain how the measures are related to the whole set and see the data as an aggregate; help students perform higher-order statistical thinking. (30 hours: Fall)

Fall Semester Begins October 26th
Registrations must be received by October 16th

Winter Semester Begins January 25th
Registrations must be received by January 15th

Register online at: www.thinkbright.org/teacherline
For more information call: (716) 845-7000 ex 360

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