

Course Title: Teaching Elementary and Middle Level Math (Requires \$69 Math Kit Purchase)

Instructors: Paul Lawrence, Angie Su, Michelle Flaming

Length: 15 hours

Dates: Rolling admissions

Prerequisites: Bachelor Degree

Number of credits: 1 semester hour

Course Description:

Elementary and middle school math teachers will observe Project MIND workshops that introduce participants to novel problem-solving strategies that use both the decimal and binary systems. Through MIND, students have opportunities to create their own projects and problems, opportunities that render the process fun, challenging, and personally meaningful. Mathematics teaching and learning come to life in this highly innovative and engaging course. All of its strategies are hands-on and discovery-based. Participants will learn to use sequenced activities that promote conceptual understanding and relate concrete understanding to symbolic interpretation. They will learn to assess students' understanding of skills and concepts and adjust instruction accordingly. Activities designed to address pattern recognition and operational procedures, that provide creative practice with operational skills, and that promote number sense, estimation strategies, and foundational understanding will become essential components in participants' toolkits. By this course's end, participants will be able to help their students to true number sense.

Objectives:

1. Knowledge –at the end of this course, participants will understand:

- a. Concepts in a spiral format so that learning occurs when the child is ready
- b. How to use games, puzzles, math stories, math songs, and brainteasers to help teach mathematical concepts;
- c. How to use effective representations and manipulatives for problem solving

2. Skills –after this course, participants will:

- a. Use investigation and self-discovery approaches
- b. Utilize games as teaching tools
- c. Encourage competition amongst the students

3. Dispositions – after this course, participants will appreciate:

- a. The use of multiple teaching techniques and strategies to solve problems
- b. Providing multiple formats for homework assignments
- c. Sets high standards and expectations

Units:

1. Developing and Assessing
Number Sense
2. Games and Strategies for
Teaching Number Operations
3. Puzzles, Brainteasers, & Games
for Math Education: Part I
4. Puzzles, Brainteasers, & Games
for Math Education: Part II
5. Division of Fractions
6. Addition and Subtraction of
Decimals
7. Multiplication and Division of
Decimals: Part 1
8. Multiplication and Division of
Decimals: Part 2

Instructor Overview:

Michelle Flaming is a Math/Curriculum/Assessment Specialist for ESSDACK. She was a member of the state writing team for the revised Kansas Curricular Standards for Mathematics and has taught at various levels. Michelle facilitates schools in the implementation process of standards-based math programs, math standards, and improved student learning. Michelle has presented nationally for NCTM and CCSCO. Michelle's goals are to stimulate students' interest, achievement, and confidence in their learning of mathematics; to strengthen leadership and improve and promote excellence in the teaching of mathematics; to be an advocate for children and math education.

Dr. Hui Fang Huang "Angie" Su is a Professor of Mathematics Education for Nova Southeastern University's Fischler Graduate School of Education. She is the creator of Project MIND - Math Is Not Difficult®, a K -12 mathematics enhancement project currently being implemented in several school districts throughout the United States. Project MIND was a multi-million dollar project funded by the South Florida Annenberg Challenge, the Toppel Family Foundation, the Quantum Foundation, National Science Foundation, JM Family Enterprise, Inc., the School District of Palm Beach County, Broward County Public Schools, Miami-Dade County Public Schools, and the Community Foundation for Palm Beach and Martin Counties. Project MIND is currently a state approved provider for Supplemental Educational Services under the No Child Left Behind Act. Prior to becoming a Professor for Nova Southeastern University, Dr. Su was the K-12 Mathematics Specialist in the division of Academic Programs for the Palm Beach County School District.

Paul Lawrence, a retired administrator/teacher, has been in public education for over 34 years. He believes that every student has the potential to learn and can be successful. His passion is to share ideas he has learned about teaching and learning with other professionals throughout the United States. To help him meet this goal, he has published a book titled *Good Connections for Testing* and offers highly energized, professional, customized workshops for districts and schools throughout the United States. Paul is on the road approximately 200 days per year and is booked up to a year in advance.

Methods of Instruction:

- Video lectures and PowerPoint presentations
- Short answer quizzes
- Graded post assessments
- Final

All steps listed under each topic must be completed to receive credit for the course. No partial credit will be given. Students must earn a minimum of 60% to pass the course.

Percentage of Course Credit

- Graded post assessments and short answer quizzes 40%
- Final Project 60%

KDS Rubric for GA courses (passing requirements: 60 points):

A: 90 - 100 points

B: 80

C: 70 points

D: 60 points

F: Fewer than 60 points

Component	Unsatisfactory (10 points)	Basic (20 points)	Proficient (30 points)	Distinguished (40 points)
Critical thinking post-work	<u>Critical thinking post-work:</u>	<u>Critical thinking post-work:</u>	<u>Critical thinking post-work:</u>	<u>Critical thinking post-work:</u>
And	0-40% correct	60% correct	80% correct	100% correct
Short answer quizzes	<u>Short answer quiz:</u> -Participant included no content from the course in his or her responses -Participant did not address the questions posed	<u>Short answer quiz:</u> -Participant included some content from the course, usually appropriate, in his or her responses -Participant answered the questions directly, not always fully	<u>Short answer quiz:</u> -Participant included appropriate content from the course in his or her responses -Participant made thoughtful comments in direct response to the questions	<u>Short answer quiz:</u> -Participant provided rich detail from the content of the course in his or her responses -Participant made his or her responses to the questions personally meaningful
Final	Unsatisfactory (30 points)	Basic (40 points)	Proficient (50 points)	Distinguished (60 points)

	<p><u>Requirements of Assignment:</u></p> <p>-The assignment is substantially incomplete</p>	<p><u>Requirements of Assignment :</u></p> <p>-Many requirements met, but a few pieces are missing, while others are underdeveloped—e.g., missing reflection or rubric or scant reflection and vague rubric</p>	<p><u>Requirements of Assignment:</u></p> <p>-Participant has fulfilled all the requirements of the assignment.</p>	<p><u>Requirements of Assignment:</u></p> <p>-All requirements gone beyond the requirements of the Assignment. e.g., inclusion of rubric, reflection, objective(s), etc.—whatever the directions indicate</p>
	<p><u>Form:</u></p> <p>- Plentiful grammatical mistakes -Confusing content -Missing documentation of sources</p>	<p><u>Form:</u></p> <p>-Distracting grammatical errors -Confusing content -Inconsistent or missing documentation of sources</p>	<p><u>Form:</u></p> <p>-Participant has written a solid essay or lesson plan, including appropriate detail and in an interesting style.</p>	<p><u>Form:</u></p> <p>-No grammatical errors -Eloquent expression -Proper citation of sources</p>
	<p><u>Content:</u></p> <p>-No main idea and/or main idea is irrelevant to the assignment -No apparent paragraph organization -No supporting evidence for supporting ideas -No evidence in the lesson plan—in objectives, activities, or assessments—that the learner comprehends the course content</p>	<p><u>Content:</u></p> <p>-The main idea is not clear in the opening paragraph -Relevance to main idea of supporting paragraphs is not always clear -Supporting ideas are only minimally illustrated by examples or quotes -The lesson plan does not show enough evidence that the learner understands the course content. Objectives and/or activities and/or assessments only vaguely apply to the course content</p>	<p><u>Content:</u></p> <p>-Essay is organized around a thesis or main idea, -Paragraphs are organized around ideas relevant to the main idea -Supporting ideas are evident, and usually include illustrating examples and/or quotes -The lesson plan shows evidence of understanding of the course content in its objectives, activities, and/or assessments</p>	<p><u>Content:</u></p> <p>-Essay is organized around a thesis or main idea -Paragraphs are organized around ideas relevant to the main idea -Supporting points are illustrated with examples and/or quotes -Lesson plan shows evidence of a deep understanding of course content and participant uses that understanding to create opportunities for students to authentically show what they have learned.</p>

