



MTH-C409-50 Balanced Mathematics: A Problem-Based Approach

Center for Teaching Excellence
University of Virginia's College at Wise

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 Office Hours: Phone, Skype, or Moodle chat
 Credit: 3 hour undergraduate college credit

I. Course Description:

In this course participants will examine a research based trajectory for development of number sense, place value, fractions, decimals, percents, algebraic reasoning, proportional reasoning, geometry, measurement, probability and data analysis needed for students to have an in depth understanding of mathematical concepts required by the Virginia Standards of Learning for Mathematics. Participants will create problem-based lesson plans to balance concepts and procedures for effective learning. There is a place for procedures for students to be efficient; however, there is a need for students to discover concepts of mathematical ideas to be successful in applying mathematics to real life context.

Class Week	Class Topics:	Assignment(s) Due: (All assignments are due by midnight each Tuesday, unless otherwise stated)
1	Teaching through Problem Solving and Planning for a Problem-based Classroom	Discussion Post, Read Chapters 3 and 4 in text.
2	Developing Number Sense, Meanings for Operations and Helping Students Master Basic Facts	Read Chapters 8, 9 and 10, Discussion Post, Lesson Plan
3	Developing Whole-Number Place-Value Concepts and Strategies for Computation and Estimation	Read chapters 11, 12 and 13, Discussion Post, Lesson Plan
4	Algebraic Thinking: Generalizations, Patterns and Functions	Read Chapter 14, Discussion Post, Lesson Plan
5	Developing Fraction Concepts and Strategies for Computation	Read Chapters 15 and 16, Discussion Post, Lesson Plan
6	Developing concepts of Decimals and Percents	Read Chapter 17, Discussion Post, Lesson Plan
7	Proportional Reasoning	Read Chapter 18 Discussion Post, Lesson Plan
8	Developing Measurement Concepts	Read Chapter 19, Discussion Post, Lesson Plan
9	Geometric Thinking and Geometric Concepts	Read Chapter 20, Discussion Post, Lesson Plan
10	Developing Concepts of Data Analysis	Read Chapter 21, Discussion Post, Lesson Plan
11	Exploring Concepts of Probability	Read Chapter 22. Discussion Post, Lesson Plan
12	Developing Concepts of Exponents, Integers and Real Numbers	Read Chapter 23, Discussion Post, Lesson Plan

"We only think when confronted with a problem." — John Dewey