

Course Syllabus
Southeast Missouri State University

Department of Mathematics
Course Number MA 841
November 1998

Title of Course: *Topics in Middle School Mathematics*

I. Catalog Description and Credit Hours

A project-based exploration of selected mathematical concepts from the upper elementary and middle school curricula (which are also emphasized in Missouri's Framework for Curriculum Development in Mathematics K-12 and Show-Me Standards.) (3 credits)

II. Prerequisites

Graduate standing.

III. Purposes and Objectives of the Course

This course is designed for upper elementary and middle school teachers of mathematics and will include selected mathematical concepts from grades 5-9. The goals of this course are for participants to:

- (1) increase their mathematical power by becoming better problem solvers.
- (2) acquire a more thorough understanding of the mathematics they teach through exploration and discovery.
- (3) observe teaching and assessment strategies recommended in the NCTM *Standards*.
- (4) value problem solving, modeling, and manipulatives as appropriate methods of teaching and learning mathematical concepts.
- (5) become familiar with current reform efforts in mathematics education.

The objectives of the course are that the participant will be able to:

- (1) use models and manipulatives to understand and explain mathematical concepts.
- (2) describe real world applications of mathematical concepts.
- (3) model alternative solutions to problems.
- (4) design instructional lessons or units that integrate mathematical concepts with appropriate teaching methods and materials.
- (5) effectively communicate mathematical concepts in written and verbal expression.
- (6) use technology to explore and solve problems.

IV. Expectations of Students:

- A. Regular class attendance.
- B. Participation in class activities.
- C. Read all assigned material.
- D. Complete all assignments and projects.

V. Course Outline

	<u>Topics</u>	<u>Class Hours</u>
A.	Data Analysis, Probability, and Statistics	13
B.	Discrete Mathematics	12
C.	Geometric and Spatial Sense	14
D.	Number Sense, Patterns, and Relationships	18
E.	Assessment (Tests, quizzes, etc.)	3
	Total Hours	60

VI. Textbook

There is no required textbook. Reference books and materials will be available to students throughout the course.

VII. Basis of Student Evaluation

- A. Participation/informal assessment 50 %

The participants will be required to complete several in-class and out-of-class group and individual projects and activities that will be scored according to project/activity specific rubrics.

- B. Formal assessment 50 %

The participants will complete in-class and take-home tests/quizzes.