

**University Studies Program**  
**Southeast Missouri State University**

**Department of Mathematics**  
**Title of Course: Survey of Mathematics**

**Course No. MA 123**  
**Revision: Fall 2008**

**I. Catalog Description and Credit Hours of Course**

A sampling of topics including logic, number systems, geometry, probability, statistics, history of mathematics, and real-life applications. 3 credit hours.

**II. Prerequisites:**

MA102 with a grade of 'CR' or MA 095 with a grade of 'C' or higher, or ACT Math subscore of 18-20 with MA 095 placement score of 14 or higher, or ACT Math subscore of 21 or higher.

**III. Purposes of the Course:**

1. Show how trigonometric models apply to current problems. (Objectives 1, 2, 3, 4, 6, 9)
2. Explore practical applications of geometry. (Objectives 1, 2, 5)
3. Introduce contemporary mathematical topics such as fractals and tessellations. (Objectives 1, 2, 6, 8)
4. Develop the problem-solving capabilities of the students. (Objectives 1, 2, 3, 7, 9)
5. Help students make better use of modern hand-calculators. (Objectives 2, 3, 6)
6. Show how modern mathematics is applied in a broad range of disciplines. (Objectives 1, 2, 4, 5, 9)
7. Help students understand graphic representation of data, e.g. pictograms, histograms (Objectives 1, 2, 3, 7, 9)
8. Help students realize that mathematics is a dynamic subject, continually developing to solve current problems. (Objectives 1, 4, 6, 8, 9)
9. Show how mathematics is applied in the consumer's everyday world. (Objectives 1, 2, 7, 9)
10. Show how mathematical number systems have evolved through the ages up through the present. (Objectives 3, 4, 5, 8)
11. Help students understand the relevance of counting methods and probability to real-world situations. (Objectives 1, 2, 6, 7, 9)

**IV. Expectations of Students:**

- A. Regular class attendance.
- B. Participation in class discussion and experiential learning activities.
- C. Read all materials assigned.
- D. Timely completion of all written and oral assignments.
- E. Demonstration of mastery of course content on examinations.
- F. Abide by university Academic Honesty Policy
- G. Follow common classroom courtesy standards.

## V. Course Outline:

<u>Topic</u>	<u>Class Hours</u>
• Set Theory (Chapter 2 Sections 1,2,3)	2
• Logic (Chapter 3: Sections 1 to 7)	9
• Numeration Systems (Chapter 4: Sections 1,4)	2
• Geometry (Chapter 10 Sections 1, 2,3,6,7)	6
• Consumer Mathematics (Chapter 8 Sections 1,2)	2
• Counting Methods and Probability (Chapter 11 Sections 1,2,3,4,5,8)	8
• Statistics (Chapter 12 Sections 1,2,3)	4
• Graph Theory (Chapter 15, sections 1, 2, 3)	4
• Voting Methods (14.1)	2
• Choice of optional topics given below	3
• Review	3
Total	44

\* More topics may be covered as time allows. Suggestions: 1.2, 1.3, 9.1, 11.6, 11.7, 12.4, 4.3, 4.4

**VI. Textbook:** *Thinking Mathematically*, 4<sup>th</sup> Edition, Robert Blitzer, Prentice Hall, 2008.

## VII. Basis of Student Evaluation:

A. Tests	60%
B. Quizzes	20%
C. Homework and Participation	20%

Homework and Participation will consist of homework assignments, application projects, and in class activities.