



Syllabus

MAT 280 Mathematics for Elementary School Teachers II

General Information

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Department Mathematics

Course Prefix MAT

Course Number 280

Course Title Mathematics for Elementary School Teachers II

Course Information

Catalog Description This course is the second of a two-semester sequence designed for prospective elementary education teachers. The course presentation and material will conform to the National Council of Teachers of Mathematics (NCTM) Standards and therefore will present mathematics in the context of problem solving, communication, reasoning and proof, representations, and connections. Students will explore mathematical concepts and theories underlying topics which include: proportional reasoning, statistics, probability, and geometry in terms of shape, transformations, and measurement. Modeling a positive attitude toward mathematics is emphasized as this is important for future educators.

Credit Hours 3

Lecture Contact Hours 3

Lab Contact Hours 0

Other Contact Hours 0

Grading Scheme Letter

Prerequisites

MAT 180

Co-requisites

None

First Year Experience/Capstone Designation

This course **DOES NOT** satisfy the outcomes applicable for status as a FYE or Capstone.

SUNY General Education

This course is designated as satisfying a requirement in the following SUNY Gen Ed category

Mathematics (and Quantitative Reasoning)

FLCC Values

Institutional Learning Outcomes Addressed by the Course

Inquiry and Interconnectedness

Course Learning Outcomes

Course Learning Outcomes

1. Apply arithmetic, geometry, and statistics to solve problems, demonstrating strategies in both written and verbal forms.
2. Represent mathematical information symbolically, visually, numerically, and verbally.
3. Communicate the meaning of mathematical results and recognize the limitations of mathematical methods.
4. Demonstrate the ability to estimate and check mathematical results for reasonableness.

Outline of Topics Covered

- I. **Rational Numbers**
 - a. **Conversions between decimals and fractions**
 - b. **Operations with rational numbers**
- II. **Proportional reasoning**
 - a. **Ratio and Proportion**
 - b. **Percents**
- III. **Real Numbers**
 - a. **Introduction to irrational numbers**
 - i. **Pi, ?**
 - ii. **Square root of 2, ?2**
 - b. **Properties of real numbers**
 - c. **Pythagorean Theorem**
- IV. **Uncertainty: Data and Chance**

- a. **Representing and Interpreting Data**
- b. **Distributions: Centers and Spreads**
- c. **Concepts Related to Chance**
- d. **Counting and Chance**
- V. **Geometry as Shape**
 - a. **Basic Concepts of Geometry**
 - b. **Two-Dimensional Figures**
 - c. **Three-Dimensional Figures**
- VI. **Geometry as Transforming Shapes**
 - a. **Congruence Transformations**
 - b. **Symmetry and Tessellations**
 - c. **Similarity**
- VII. **Geometry as Measurement**
 - a. **Systems of Measurement**
 - b. **Perimeter and Area**
 - c. **Surface Area and Volume**