

Mathematics 1342

Mathematics for Elementary/Middle School Teachers II

Student Learning Outcomes

- 1. Students will gain factual knowledge including the mathematical terminology, classifications, and methods used in this course.** Students will use the vocabulary, symbolism, structure, reasoning, and procedures that are needed to teach the mathematical content for grades K-8+. See course content for more details.
- 2. Students will learn the fundamental principles, generalizations, and theories covered in this course.** Students will demonstrate understanding of the conservation of area and volume; non-standard and standard measurement; proportionality, similarity, congruence, and basic probability.
- 3. Students will learn to apply course material.** Students will be able to make connections between concepts and also apply knowledge in a new and different setting. In particular, students will learn how to translate course content into K-8 grade-appropriate lessons.
- 4. Students will develop specific skills, competencies, and points of view needed by K-8 mathematics teachers.** Besides learning the mathematical content of this course, students will:
 - become familiar with the Texas Essential Knowledge and Skills (TEKS) and the National Council of Teachers of Mathematics (NCTM) Standards;
 - learn multiple approaches to the teaching of mathematics;
 - use manipulatives to model mathematical concepts;
 - develop communications skills (oral, written, and listening), knowledge of appropriate vocabulary, and various questioning strategies;
 - learn how to use resources (such as the Internet and NCTM journals) in planning classroom activities.
- 5. Students will gain a broader understanding and appreciation for mathematics.**

Course Content

Textbook: *Mathematics for Teachers: An Interactive Approach for Grades K-8*, Fourth Edition, by Thomas Sonnabend. The following chapters are covered:

- 7. Decimals, Percents, and Real Numbers.** ratio and proportion; percents. (The rest of this chapter is covered in Math 1341.)
- 8. Introductory Geometry.** beginning geometry; polygons; triangles, quadrilaterals, and circles; angle measures of polygons; three-dimensional geometry; viewing and drawing solid figures.
- 9. Congruence, Symmetry, and Similarity.** transformations and congruence; applications of transformations; constructions and congruence; symmetry; similarity and dilations.
- 10. Measurement.** systems of measurement; perimeter and area; areas of quadrilaterals, triangles, and circles; the Pythagorean theorem; surface area; volume; lengths, areas, and volumes of similar figures.
- 12. Statistics.** observational studies and experiments; statistical graphs and tables; misleading graphs and statistics; mode, median, and mean; measuring spread; standardized test scores. (as time permits)
- 13. Probability.** experimental and theoretical probability; probability rules and simulations. (as time permits)