**Math 1350 – Mathematics for Elementary/Middle School Teachers I**

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. In addition to 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.

1. Students will gain a broader understanding and appreciation for mathematics.

Course Content:

The following chapters from the textbook are covered:

* Chapter 1: An Introduction to Problem Solving
  + Inductive and deductive reasoning; patterns; problem solving
* Chapter 2: Introduction to Logic and Sets
  + Sets; operations on sets; Venn diagrams
* Chapter 3: Numeration Systems and Whole Number Operations
  + Numeration systems; addition, subtraction, multiplication, and division of whole numbers; properties, algorithms, mental computation, and estimation of whole numbers; place value and algorithms in other bases
* Chapter 4: Number Theory
  + Factors; divisibility; prime and composite numbers; common factors and multiplies
* Chapter 5: Integers
  + Addition, subtraction, multiplication, and division of integers; properties of integer operations
* Chapter 6: Rational Numbers and Proportional Reasoning
  + Rational numbers; addition, subtraction, multiplication, and division of rational numbers; properties, estimation, and error patterns with rational numbers.
* Chapter 7: Rational Numbers as Decimals and Percents
  + Place value, estimation, and mental computation; decimal arithmetic and error patterns; rational, irrational, and real numbers.
* Chapter 8: Real Numbers and Algebraic Thinking
  + The real number system; functions.