

SYLLABUS

MATH 14001 – Basic Mathematical Concepts I

(4 Credit Hours)

Catalog Information: Development of the real number system and its sub-systems, open sentences, numeration systems, modular arithmetic and some number theory concepts.

Prerequisite: Minimum 45 ALEKS math score; or minimum C grade in MATH 00023 or any higher MATH course (except MATH 10041, MATH 10051, or MATH 11008).

Text: *Mathematics for Elementary Teachers with Activities*, Sybilla Beckmann, 5th edition, Pearson. This course covers Chapters 1 – 8.

Numbers and the Base-Ten System (3 days)

- Counting Numbers
- Place value in base ten and other bases
- Decimals and Negative Numbers
- Comparing and Rounding Numbers

Problem solving (1 day)

Fractions (2 days)

- Defining and modeling fractions
- Equivalent fractions
- Comparing fractions
- Reasoning about percent

Addition and subtraction of whole numbers, decimals, fractions, and negative numbers (4 days)

- Interpretations and models for addition and subtraction
- Properties
- Algorithms

EXAM 1

Multiplication of whole numbers (4 days)

- Interpretations and models for multiplication
- Multiplying by 10 in Base Ten
- Properties
- Algorithms

Multiplication of fractions, decimals, and negative numbers (3 days)

- Interpretations and models
- Algorithms
- Powers and scientific notation

Division of whole numbers, negative numbers, fractions, and decimals (3 days)

- Interpretations and models
- Algorithms

EXAM 2

Ratio and proportional relationships (3 days)

- Defining ratio and proportional relationships
- Models for solving proportion problems
- Unit rates and multipliers
- Representing proportional relationships
- Percent increase and percent decrease

Number theory (4 days)

- Factors and multiples
- Divisibility tests
- Prime and composite numbers
- Greatest common denominator and least common multiple
- Rational and irrational numbers

REVIEW

FINAL EXAM