

Course Objectives/Course Outline
Spokane Community College

Course Title: Mathematics for Elementary Education I

Prefix and Course Number: MATH 211

Course Learning Outcomes:

By the end of this course, a student should be able to:

- Apply mathematics to the real world, using many different problem-solving strategies.
- Work with sets and operations on set of real numbers and their subsets.
- Understand the Hindu-Arabic and other numeration systems.
- Work with relations and functions.
- Demonstrate proficiency in the vocabulary of the operations and properties of the number system.
- Use and explain the algorithms for whole number computation in different bases.
- Communicate the meaning of the beginning number theory vocabulary.
- Use and explain the algorithms for fraction arithmetic, decimal arithmetic.
- Use and explain ratios, proportions, and percent.
- Demonstrate proficiency in the vocabulary, operations, and properties of integers, rational numbers and real numbers.
- Read and create graphs on the Cartesian plane.
- Communicate mathematical idea in both everyday and mathematical language, using appropriate vocabulary and notation.
- Judge the reasonableness of a solution or answer, and justify all processes used.

Course Outline: Units 1-7 required. Units 8 and 9 optional.

- I. Tools for Problem Solving
 - A. Patterns
 - B. Methods of problem solving
- II. Sets and Functions
 - A. Definitions
 - B. Set operations
 - C. Relations and functions
- III. Numeration Systems
 - A. Different numeration systems
 - B. Operations on whole numbers
 - C. Other number bases
- IV. The Integers
 - A. Operations
 - B. Equations and inequalities
- V. Number Theory
 - A. Divisibility
 - B. Prime and composite numbers
 - C. GCD and LCM
- VI. Rational Numbers
 - A. Operations
 - B. Properties

- C. Ratio and proportion
- D. Exponents
- VII. Decimals
 - A. Operations
 - B. Properties
 - C. Percents and interest
 - D. Radicals and rational exponents
- VIII. Statistics
 - A. Graphs
 - B. Measures of central tendencies
- IX. Geometry
 - A. Polygonal curves
 - B. Angles
 - C. Measurement
 - D. Graphing