

# North Hennepin Community College

## MATH 1031: Math for Elementary Education I

### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: \*.\*

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This is the first of a two-course sequence designed for prospective elementary education majors. Students will develop a deep understanding of elementary mathematics and the ability to effectively communicate mathematical ideas. The course focuses on heuristics for mathematical problem solving in the contexts of place value and number systems; operations with whole numbers, integers, fractions, and decimals; and rates, ratios, proportions, and percentages. Prerequisites: College math placement level or successful completion of Math 0902 or 0980 with grade of "C" or better.

**B. COURSE EFFECTIVE DATES:** 08/27/1997 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. See Course Description and Course Outcomes

### D. LEARNING OUTCOMES (General)

1. Compute fluently and make reasonable estimates. (ELO 1, 2)
2. Apply and adapt a variety of appropriate strategies to solve problems that arise in mathematics and in other contexts. (ELO 1, 2)
3. Understand the notion of a set and perform set-theoretic operations. (ELO 1, 2)
4. Identify natural numbers, whole numbers, integers, rational, and real numbers. (ELO 1, 2)
5. Understand and explain the Hindu-Arabic numeration system as well as other numeration systems such as the Egyptian, Roman, Babylonian, or Mayan. (ELO 1, 2)
6. Perform the four arithmetic operations on whole numbers in a positional numeration system using different bases and a variety of algorithms. (ELO 1, 2)
7. Perform the four arithmetic operations with rational numbers expressed either as fractions or decimals. (ELO 1, 2)
8. Use manipulatives to represent whole numbers, integers, fractions, and decimals and the four operations using whole numbers, integers, fractions and decimals. (ELO 1, 2)
9. Identify the use of the identity, commutative, associative, closure, and distributive properties. (ELO 1, 2)
10. Explain and apply the concepts of number theory including divisibility, factors, multiples and prime numbers. (ELO 1, 2)
11. Correctly interpret fractions and understand them conceptually as well as in the context of a number line. (ELO 1, 2)
12. Understand percentages and convert between fractions, decimals and percenteges. (ELO 1, 2)
13. Model real life situations using rates, ratios, proportions, and percentages. (ELO 1, 2)
14. Demonstrate familiarity with both state and national k-12 mathematics standards as well as a variety of mathematical education resources (journals, internet). (ELO 3, 4)

**E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

None

**F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

**G. SPECIAL INFORMATION**

1. Knowledge of Human Cultures and the Physical and Natural World -Through study in the sciences, mathematics, social sciences, humanities, histories, languages, the arts, technology and professions.
2. Intellectual and Practical Skills - Including: Inquiry and analysis; Critical and creative thinking; Written and oral communication; Quantitative literacy; Information literacy; Teamwork and problem solving.