

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:

This course requires both of these prerequisite categories

1. Any one of these six

Placement into MATH 0970/1010/1031/1130/1140

Algebra College Level

Placement into MATH 1150

MATH 0900 - Mathematical Literacy (Minimum grade: 1.67 GPA Equivalent)

MATH 1130 - Elementary Statistics (Minimum grade: 1.67 GPA Equivalent)

MATH 1140 - Finite Mathematics (Minimum grade: 1.67 GPA Equivalent)

And

2. Any one of these 10

Placement into EAP 0930

Placement into ADEV 0952 and ADEV 1052

Reading at College Level

Reading College Level

EAP 0830 - Reading Skills Development (Minimum grade: 1.67 GPA Equivalent)

EAP 0930 - Academic Reading and Study Skills (Minimum grade: 1.67 GPA Equivalent)

EAP 1230 - College Reading and Studying Skills

ADEV 0951 - College Reading and Learning Strategies I

ADEV 0952 - College Reading and Learning Strategies II (Minimum grade: 1.67 GPA Equivalent)

ADEV 1950 - Reading Texts Critically

Corequisites: None

MnTC Goals: Goal 04 - Mathematical/Logical Reasoning

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.

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. Apply and adapt a variety of appropriate strategies to solve problems that arise in mathematics and in other contexts. (ELO 1, 2; MnTC goal area 4)
2. Compute fluently and make reasonable estimates. (ELO 1, 2; MnTC GA 4)
3. Understand the notion of a set and perform set-theoretic operations. (ELO 1, 2; MnTC GA 4)
4. Identify natural numbers, whole numbers, integers, rational, and real numbers. (ELO 1, 2; MnTC GA 4)
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; MnTC GA 4)
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; MnTC GA 4)
7. Perform the four arithmetic operations with rational numbers expressed either as fractions or decimals. (ELO 1, 2; MnTC GA 4)
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; MnTC GA 4)
9. Identify the use of the identity, commutative, associative, closure, and distributive properties. (ELO 1, 2; MnTC GA 4)
10. Explain and apply the concepts of number theory including divisibility, factors, multiples and prime numbers. (ELO 1, 2; MnTC GA 4)
11. Correctly interpret fractions and understand them conceptually as well as in the context of a number line. (ELO 1, 2; MnTC GA 4)
12. Understand percentages and convert between fractions, decimals and percentages. (ELO 1, 2; MnTC GA 4)
13. Model real life situations using rates, ratios, proportions, and percentages. (ELO 1, 2; MnTC GA 4)
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

Goal 04 - Mathematical/Logical Reasoning

1. Illustrate historical and contemporary applications of mathematical/logical systems.
2. Clearly express mathematical/logical ideas in writing.
3. Explain what constitutes a valid mathematical/logical argument(proof).
4. Apply higher-order problem-solving and/or modeling strategies.

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.