

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 any of these 10 prerequisite categories

1. Both of these groups

1. Any one of these seven

A score of 1 on test Exempt from taking Math placement test

A score of 235 on test Accuplacer NG Advanced Algebra Functions

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

MATH 0970 - Bridge to College Algebra (Minimum grade: 1.67 GPA Equivalent)

MATH 0980 - Pre College Algebra (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 five

A score of 1 on test Exempt from taking Reading placement test

A score of 55 on test Accuplacer Reading Comprehension

A score of 1 on test Dev Ed Course Waiver-Rdg

A score of 21 on test ACT Reading

A score of 1047 on test MN Comprehensive Assessment Reading

Or

2. ADEV 0951 - College Reading and Learning Strategies I

Or

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

Or

4. ADEV 1950 - Reading Texts Critically

Or

5. ENGL 1201 - College Writing I (Minimum grade: 1.67 GPA Equivalent)

Or

6. A score of 92 on test Accuplacer ESL Reading Skills

Or

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

Or

8. ESOL 0830 - Reading Skills Development

Or

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

Or

10. EAP 1230 - College Reading and Studying Skills

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.