

# North Hennepin Community College

## MATH 1032: Math for Elementary Education II

### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: \*.\*

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites:

This course requires the following prerequisite

MATH 1031 - Math for Elementary Education I (Minimum grade: 1.67 GPA Equivalent)

Corequisites: None

MnTC Goals: Goal 04 - Mathematical/Logical Reasoning

This is the second 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 and reasoning in the contexts of geometry, measurement, probability, and statistics. Prerequisites: Successful completion of Math 1031 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. Describe and compare data distributions graphically and numerically using shape, outlier, center, cluster, and spread. (ELO 1, 2, MnTC goal area 4)
2. Determine the mean, median, mode, range, and standard deviation of numerical data. (ELO 1, 2, MnTC GA 4)
3. Compute probabilities of simple and compound events using both experimental and theoretical methods. (ELO 1, 2, MnTC GA 4)
4. Solve problems using the Fundamental Counting Principle, permutations, and combinations. (ELO 1, 2, MnTC GA 4)
5. Use expected value to interpret data and make decisions in a wide range of applied problem situations. (ELO 1, 2, MnTC GA 4)
6. Recognize and verbally distinguish among geometric shapes in 2 or 3 dimensions. (ELO 1, 2, MnTC GA 4)
7. Recognize reflection and rotational symmetry in two-dimensional shapes. (ELO 1, 2, MnTC GA 4)
8. Know and apply angle properties of transversals, triangles, and polygons. (ELO 1, 2, MnTC GA 4)
9. Define a tessellation and identify polygons that tessellate the plane. (ELO 1, 2, MnTC GA 4)
10. Describe the properties of regular polygons and polyhedra. (ELO 1, 2, MnTC GA 4)
11. Compute areas of plane figures. (ELO 1, 2, MnTC GA 4)
12. Compute volumes and surface areas of basic 3-dimensional figures. (ELO 1, 2, MnTC GA 4)
13. Use the metric and English systems to measure length, mass, area, and volume. (ELO 1, 2, MnTC GA 4)
14. Define and apply the concepts of congruence and similarity of triangles. (ELO 1, 2, MnTC GA 4)
15. Define and apply concepts of transformational geometry: translations, rotations, reflections, and glide reflections. (ELO 1, 2, MnTC GA 4)
16. Demonstrate understanding of correlation and R-squared values as they are used in academic journal articles. (ELO 3, 4)
17. 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.