NORMANDALE
COMMUNITY COLLEGE

Course Outline for: MATH 1065 Elements of Mathematics 2

A. Course Description

1. Number of credits: 4
2. Lecture hours per week: 4
   Lab hours per week: None
3. Prerequisites: MATH 1055
4. Co-requisites: None
5. MnTC Goals: Goal 4

As part of a two-course sequence, this course focuses on measurement, geometry, probability, data and statistics. Emphasis on mathematical reasoning, estimation, and problem solving. Satisfies MnTC Goal 4.

B. Date last reviewed: January, 2019

C. Outline of Major Content Areas

1. Measurement
2. Geometry: Euclidean, transformational, and coordinate
3. Probability
4. Data and statistics

D. Course Learning Outcomes

Upon successful completion of the course, the student will be able to:

1. Recognize, classify, and name geometric shapes in two or three dimensions (4a, 4b)
2. Distinguish between a property of a shape and defining characteristics of that shape
3. Describe the properties of regular polygons and polyhedra (2c, 4a, 4b)
4. Know and apply angle properties of transversals, triangles, and polygons (4a, 4b, 4c, 4d)
5. Define a tessellation and identify polygons that tessellate the plane (4a,4b)
6. Use the metric and English systems to measure length, mass, area, and volume (4a, 4b)
7. Compute areas and perimeters of plane figures (4a, 4b, 4d)
8. Compute volumes and surface areas of basic 3-dimensional figures (4a, 4b, 4d)
9. Define and apply the concepts of congruence and similarity of triangles. (2c, 4a, 4b, 4c, 4d)
10. Develop a reasoned argument for the truth of a geometric claim and be able to defend or alter the claim. (2a, 2b, 2c, 4a, 4b, 4c, 4d)
11. Define and apply concepts of transformational geometry: translations, rotations, reflections, dilations, and glide reflections. (4a, 4b, 4c, 4d)
12. Define and apply concepts of coordinate geometry, such as distance formulas, slope, etc. (4a, 4b, 4c, 4d)

13. Describe and compare data distributions graphically and numerically using shape, outlier, center, cluster, and spread (SOCCS). (2a, 2b, 4a, 4b, 4d)
14. Use computer software to graph and analyze data. (4a, 4d)
15. Solve problems using the Fundamental Counting Principle, permutations, and combinations.
16. Compute probabilities of simple and compound events using both experimental and theoretical methods. (2b, 4a, 4b, 4c, 4d)
17. Use expected value to interpret data and make decisions in a wide range of applied situations. (4a, 4b, 4c, 4d)
18. Use appropriate technology to investigate and demonstrate some of the mathematical concepts in the course.
19. Apply and adapt a variety of appropriate strategies to solve problems that arise in mathematics and in other contexts. (2a, 2b, 2c, 4a, 4b, 4c, 4d)

E. Methods for Assessing Student Learning

The instructor will choose from among various evaluation techniques including, but not limited to, in-class testing, take-home testing, assignments, quizzes, attendance, group or individual projects, and research. The instructor will also choose a method for end-of-the-semester evaluation.

F. Special Information

Students are expected to have computer access and familiarity with basic record-keeping software. Instructors may require a scientific calculator.