Course Outline for: MATH 1020 Math Trek: Math for Liberal Arts

A.   **Course Description:**
1. Number of credits: 3
2. Lecture hours per week: 3
3. Prerequisites: MATH 630 (C- or better); OR
                       MATH 980 (C- or better); OR
                       MATH 991 (C- or better); OR
                       MATH 0601, 0602, or 0603 with mastery of sufficient topics; or
                       High School GPA: 2.70+; OR
                       Accuplacer Quantitative Reason Score of 265+; OR
                       MCA Math score: 1150-1157
4. Corequisites: None
5. MnTC Goals: Goal 4 Mathematical/Logical Reasoning

The purpose of this introductory course is to develop an understanding of the nature of mathematics and an awareness of its role in society. Through a selection of topics, the course will develop problem-solving techniques, an appreciation for mathematics, and the relationship of mathematics to other disciplines. Topics may include voting systems, financial mathematics, environmental mathematics, or logic and problem solving. This course is an alternative for students whose program does not require College Algebra (Math 1100).

B.   **Date last reviewed/updated:** January 2024

C.   **Outline of Major Content Areas:**
1. Mathematical modeling, such as counting principles, sequences, linear programming, mathematical visualization, and environmental issues.
2. Logic and Geometry, such as deductive and inductive reasoning, set theory, topology, and graph theory.
3. Probability, Statistics, and Data Analysis, such as game theory, financial mathematics, voting systems, and algorithms.

D.   **Course Learning Outcomes:**
Upon successful completion of the course, the student will be able to:
1. Construct, analyze, and interpret problems in mathematical terms. (Goal 2a, 2b, 2c, 4a, 4b, 4d)
2. Analyze various forms of mathematical graphs and visualizations. (Goal 2a, 2c, 4a)
3. Solve problems through the application of logical reasoning, quantitative analysis, and appropriate mathematical methods. (Goal 2a, 2c, 4b, 4c)
4. Interpret the basic nature of mathematics. (Goal 2d, 4a)
5. Describe the relationship of mathematics to other disciplines. (Goal 2d, 4a, 4d)

E.   Methods for Assessing Student Learning:
Methods for assessment may include, but are not limited to, the following:
1. In-class testing
2. Take-home testing
3. Assignments
4. Quizzes
5. Attendance
6. Group or individual projects
7. Research

F.   Special Information:
Instructors may require a scientific calculator.