MASTER COURSE OUTLINE

A. MATH 1050 Mathematics for Liberal Arts

B. COURSE DESCRIPTION:

This course is an exploration of a variety of areas of mathematics designed for students who are majoring in various areas of the liberal arts or in elementary education. Introductory material in sets, logic, probability, statistics, and consumer mathematics will be applied using a problem solving approach. College-level reading ability in English is strongly recommended. Prerequisite: Math 0660 or appropriate placement in course based on Multiple Measures for Course Placement – Math Decision Band Chart.
MnTC (Goals 4/MA and 2/CT); (3 Cr – 3 lect, 0 lab)

C. *MnTC Discipline: Mathematical/Logical Reasoning **Core Theme: Critical Thinking

D. RIVERLAND INSTITUTIONAL LEARNING OUTCOMES:

This course addresses the following Riverland Institutional Learning Outcome(s):
☒ ILO 1: critical thinking *(Core Theme Goal 2)*
☐ ILO 2: awareness of the larger global community *(Core Theme Goal 7 or 8)*
☐ ILO 3: ethical, engaged citizenship *(Core Theme Goal 9 or Goal 10)*
☐ ILO 4: communication and collaboration *(Discipline Goal 1 and by any learning outcome(s) involving communication or collaboration)*

E. MAJOR CONTENT AREAS:

- Critical Thinking Skills
  - Inductive reasoning
  - Deductive reasoning
  - Problem solving strategies
  - Logic
- Sets
  - Language of sets
  - Set operations
  - Venn diagrams
- Probability
  - Empirical and theoretical probability
  - Odds
  - Expected value
  - Sample space and tree diagrams
  - Probabilities involving *and* and *or*
  - Conditional probability
  - Permutations and combinations

- Statistics
    - Descriptive statistics
    - Measures of central tendency
    - Measures of dispersion
    - The normal distribution curve
- Consumer Mathematics
    - Personal loans and/or mortgages
    - Savings plans

F. GOAL TYPES, OBJECTIVES, AND OUTCOMES:

GOAL	OBJECTIVES Students will be able to	OUTCOMES The student will successfully
MnTC Goal 2a	gather factual information and apply it to a given problem in a manner that is relevant, clear, comprehensive, and conscious of possible bias in the information selected.	1. organize information about practical customer situations in order to minimize cost or maximize dollar value.
MnTC Goal 2b	imagine and seek out a variety of possible goals, assumptions, interpretations, or perspectives which can give alternative meanings or solutions to given situations or problems.	1. determine the different implications of using the mean, median or mode as the average value of a data set.
MnTC Goal 2c	analyze the logical connections among the facts, goals, and implicit assumptions relevant to a problem or claim; generate and evaluate implications that follow from them.	1. discuss which problem solving method(s) best apply to the situation.
MnTC Goal 4a	illustrate historical and contemporary applications of mathematical/logical systems.	1. use set theory and logic as a system for decision making.
MnTC Goal 4b	clearly express mathematical ideas in writing.	1. find and use appropriate examples, formulas, and tables to answer questions about savings, investments and loans.
MnTC Goal 4c	explain what constitutes a valid mathematical /logical argument (proof).	1. apply a symbolic system of truth tables/Venn diagrams to arguments to determine whether they are valid or invalid. 2. apply deductive logic to solve logic puzzles.
CS	demonstrate competency in using counting methods and probability.	1. know and apply basic counting techniques and methods to calculate probabilities, odds, and mathematical expectation.

G. SPECIAL INFORMATION:

This course may require use of the Internet, the submission of electronically prepared documents and the use of a course management software program. Students who have a disability and need accommodations should contact Accessibility Services at the beginning of the semester. This information will be made available in alternative format, such as Braille, large print, or current media, upon request. A scientific calculator is required.

H. COURSE CODING INFORMATION:
Course Code A/Class Maximum 48; Letter Grade

Revision date: 08/29/14; 09/01/16; 09/20/16; 09/29/22; 03/28/23
AASC Approval date: 09/20/16; 02/19/19; 10/18/22; 03/28/23

*Riverland Community College Disciplines	MnTC Goal Number
Communication (CM)	**1**
Natural Sciences (NS)	**3**
Mathematics/Logical Reasoning (MA)	**4**
History and the Social & Behavioral Sciences (SS)	**5**
Humanities and Fine Arts (HU)	**6**

**Riverland Community College Core Themes	MnTC Goal Number
Critical Thinking (CT)	**2**
Human Diversity (HD)	**7**
Global Perspective (GP)	**8**
Ethical and Civic Responsibility (EC)	**9**
People and the Environment (PE)	**10**

*These five MnTC Goals have been identified as Riverland Community College Disciplines.
** These five MnTC Goals have been identified as Riverland Community College Core Themes.
NOTE: The Minnesota Transfer Curriculum "10 Goal Areas of Emphasis" are reflected in the five required discipline areas and five core themes noted in the Riverland Community College program of study guide and/or college catalog.