

Course discipline/number/title: MATH 1113: Finite Math with College Algebra

A. CATALOG DESCRIPTION

1. Credits: 3
2. Hours/Week: 3
3. Prerequisites (Course discipline/number): MATH 0099 or MATH 0100
4. Other requirements: None
5. MnTC Goals (if any): Goal 4/Mathematics/Logical Reasoning

B. COURSE DESCRIPTION: This course is an introductory course in mathematical modeling and decision making with emphasis on applications. College level reading skills as demonstrated by completion of READ 0900 or equivalent placement score.

C. DATE LAST REVISED (Month, year): February, 2021

D. OUTLINE OF MAJOR CONTENT AREAS:

1. Linear and Quadratic equations and functions
2. Exponential and logarithmic equations and functions
3. Regression
4. Systems of equations
5. Linear Programming
6. Probability distributions and expected value
7. Present and Future Value-Compound Interest and Annuity

E. LEARNING OUTCOMES (GENERAL): The student will be able to:

1. Derive the unique linear equation when given 2 data points.
2. Use regression to find the equation of the best fit when given a set of data points and explain the results.
3. Derive revenue function and find its maximum algebraically.
4. Find the difference quotient when given a quadratic function and explain what it means for application problems.
5. Solve exponential and logarithmic equations.
6. Find the x and y intercepts when given any function, using a variety of methods.
7. Solve a system of equations and linear programming problems using a variety of methods and explain the results.
8. Write solutions in parametric form for a dependent system.
9. Set up the probability distribution for an experiment, find the expected value and explain the results.
10. Select an appropriate formula for a financial application problem and solve for the missing information.
11. Calculate and explain the total savings when a given loan payment has its monthly payment increased by a given amount.

F. LEARNING OUTCOMES (MNTC):

Goal 4/Mathematics/Symbolic Systems: The student will be able to:

1. Illustrate historical and contemporary applications of mathematics/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.

G. METHODS FOR EVALUATION OF STUDENT LEARNING: Methods may include but are not limited to:

1. Tests
2. Quizzes
3. Homework
4. Projects
5. Group assignments
6. Comprehensive Final Exam

- H. RCTC CORE OUTCOME(S). This course contributes to meeting the following RCTC Core Outcome(s):  
Critical Thinking. Students will think systematically and explore information thoroughly before accepting or formulating a position or conclusion.
- I. SPECIAL INFORMATION (if any):
  - 1. A graphing calculator is a requirement for each student.