COMMON COURSE OUTLINE: Course discipline/number/title: MATH 1113: Finite Math College Algebra

A. CATALOG DESCRIPTION
1. Credits: 3
2. Hours/Week: 3
3. Prerequisites (Course discipline/number): MATH 0099 or MATH 0100 with grade of C or better and college level reading.
4. Co-requisites (Course discipline/number): None

This course is an introductory course in mathematical modeling and decision making with emphasis on applications.

B. DATE LAST REVISED (Month, year): February, 2014

C. 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

D. LEARNING OUTCOMES (GENERAL): The student will be able to:
1. Derive the unique linear equation when given 2 data points.
2. Use regression (on the calculator) to find the equation of 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, using a variety of methods (by hand and with technology).
8. Write solutions in parametric form for a dependent system.
9. Solve a linear programming problem using a variety of methods (by hand and with technology) and explain the results.
10. Set up the probability distribution for an experiment, find expected value and explain the results.
11. Select an appropriate formula for a financial application problem, and solve for the missing information.
12. Calculate and explain the total savings when a given loan payment has its monthly payment increased by a given amount.

E. LEARNING OUTCOMES (MNTC):
Goal 2/Critical Thinking: The student will be able to:
1. 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.
2. 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.
3. 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.
4. Recognize and articulate the value assumptions, which underlie and affect decisions, interpretations, analyses, and evaluations made by ourselves and others.

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 and conclusions in writing.
3. Apply higher-order problem solving and/or modeling strategies.
F. METHODS FOR EVALUATION OF STUDENT LEARNING:
   1. Tests
   2. Quizzes
   3. Homework
   4. Projects
   5. Group Assignments
   6. Comprehensive Final Exam

G. RCTC CORE OUTCOME(S) ADDRESSED:
   - Communication
   - Civic Responsibility
   - Critical Thinking
   - Personal/Professional Accountability
   - Global Awareness/Diversity
   - Aesthetic Response

H. SPECIAL INFORMATION (if any):
   A graphics calculator is a requirement for each student.