

MAT 117 – MATHEMATICAL ANALYSIS FOR BUSINESS AND ECONOMICS

8/2019

3 hrs./wk. – 3 cr.

BEGINNING FALL 2019

Catalog Description: Mathematical topics used in business and economics with emphasis on applications. Covered are polynomials, linear and quadratic models, systems of equations, matrix algebra, and linear programming including the Simplex Method.

Prerequisite: MAT 016 (grade of “C” or better) or equivalent.

Text: Lial, Hungerford Holcomb and Mullins, *Finite Mathematics with Applications*, 12th ed. (Pearson)

Syllabus

Period	Text Sections	Topics
1 – 2	1.1 – 2	The Real Numbers, Polynomials
3	1.3	Factoring
4 – 5	1.5	Exponents and Radicals
6	1.6, 2.4	First-Degree Equations (omit Absolute-Value Equations), Linear Inequalities (omit Absolute-Value Inequalities)
7	1.7	Quadratic Equations
8		Test no. 1
9 – 10	2.1 – 2	Graphs, Equations of Lines
11	2.3	Linear Models (omit Linear Regression and Correlation)
12	3.1 – 2	Functions, Graphs of Functions
13	3.3	Applications of Linear Functions
14		Midterm
15 - 16	3.4	Quadratic Functions and Applications (omit Quadratic Regression)
17 – 19	6.1 – 3	Systems of Two Linear Equations in Two Variables; Larger Systems of Linear Equations; Applications of Systems of Linear Equations
20	6.4	Basic Matrix Operations
21 - 22	6.5 – 6	Matrix Products and Inverses; Applications of Matrices
23 - 24		Review, Test no. 3
25	7.1	Graphing Linear Inequalities in Two Variables
26	7.2	Linear Programming: The Graphical Method
27 – 28	7.4	The Simplex Method: Maximization
29	7.3, 7.5	Applications of Linear Programming; Maximization Applications
30		Review, Final

Students are expected to adhere to the policies of the County College of Morris. These can be accessed at www.ccm.edu/academics/academic-policies/.

Statement of Course LEARNING OUTCOMES

- **Show** proficiency in basic and intermediate algebra skills
- **Create** and **solve** business application problems using linear and quadratic functions
- **Demonstrate** operations involving matrices
- **Use** matrices to solve Input/Output problems
- **Solve** linear programming maximization and minimization problems using graphing
- **Solve** linear programming maximization problems using the Simplex Method