

Course Name: MAT-117 Mathematical Analysis For Business and Economics

Date Updated: 8/2026

Credit Hours/week: 3 hrs./wk. – 3 cr.

BEGINNING: FALL 2026

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, 13th ed. (Pearson)

Supplementary Material: None

Calculators are often (not always) permitted for use in mathematics classes. A scientific calculator is the most advanced calculator that you will need for any of your courses. An excellent (and affordable) model is the Texas Instruments TI-30XIIS 2 Line Scientific Calculator.

Graphing calculators are sometimes permitted. However, the TI Nspire is not an acceptable graphing calculator. Only TI 84 models or below are acceptable. Calculators that can solve equations or perform other advanced operations are not allowed. Therefore, no Casio model calculators are allowed. There are also some models of Texas Instrument calculators as well as other brands that will not be allowed due to their capabilities.

Use of a calculator that is not permitted on an exam can lead to issues with academic integrity. If you have a question as to whether or not your calculator is acceptable, you need to ask your professor before your first exam.

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: <https://www.ccm.edu/compliance-information/academic-policies/>

Statement of Expected 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