COUNTY COLLEGE OF MORRIS
Course Information Outline

Course Title Mathematical Analysis For Business and Economics **PREFIX&NUMBER** MAT 117

Lecture Hours 45 **Laboratory Hours** 0 **Credit Hours** 3 **Course Fee** None

Department Chairperson Approval J. Monaghan **Date** 04-03-2009

Division Dean Approval P. Enright **Date** 5/1/09

1. Catalog Course Description

Mathematical topics used in business and economics with emphasis on applications. Topics include linear and quadratic models, systems of equations, matrix algebra, and linear programming including the Simplex Method.

2. Prerequisite(s)

MAT 016 (grade of "C" or better) or MAT 060 (grade of "C" or better) or equivalent.

3. Co-requisite(s)

None

4. Textbooks

Lial, Hungerford and Holcomb, *Finite Mathematics with Applications*, 9th ed. (Addison Wesley, 2007) and Students' Solutions Manual to accompany the text. Purchased together as a package.

5. Supplementary Books and/or Materials

6. Specialized equipment, supplies, facilities, for classes limited by enrollment or restricted by accreditation and/or equipment limitations. (Information will be used to determine differential funding category.)

None

7. Course Content (List of Topics)

- The real numbers, polynomials
- Factoring
- Exponents and radicals
- First-degree equations (omit absolute-value equations), linear inequalities (omit absolute-value inequalities)
- Quadratic equations
- Graphs, equations of lines
- Functions, graphs of functions
- Applications of linear functions
- Quadratic functions
- Applications of quadratic functions (omit quadratic regression)

- Systems of linear equations; the Gauss-Jordan Method
- Basic matrix operations
- Matrix products and inverses; applications of matrices
- Graphing linear inequalities in two variables
- Linear programming: the graphical method
- The Simplex Method: maximization
- Applications of linear programming

8. 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 Leontief Model (Input/Output) problems
- **Solve** linear programming maximization and minimization problems using graphing
- **Solve** linear programming maximization problems using the Simplex Method

9. Statement of Relation to Curriculum(s)

MAT 117 is an optional course for business administration majors.