Administrative Unit: Computer and Mathematical Sciences Department

Course Prefix and Number: MATH 170

Course Title: Finite Mathematics

Number of Credit Hours: 3  Lecture Hours: 3  Laboratory Hours: 0

Catalog Description: This course presents a variety of applications of algebra to real-world problems and includes an introduction to set theory, probability, and statistics. Topics include linear functions, systems of linear equations and inequalities, matrices, linear programming, and the mathematics of finance. Prerequisites: Grade of C or better in MATH 104, or a score of 21 or above on the math portion of the ACT (or if the ACT was taken before September 1989, a score of 20) or a passing score on the Columbia College Math Placement Exam. G.E.

Prerequisite(s)/Corequisite(s): Grade of C or better in MATH 104, or a score of 21 or above on the math portion of the ACT (or if the ACT was taken before September 1989, a score of 20) or a passing score on the Columbia College Math Placement Exam.


Armstrong, Bill & Don Davis. *Finite Mathematics.* Prentice Hall.

Course Objectives:

- To communicate mathematically in both written and verbal forms.
- To reason with symbolic and graphical representations.
- To use mathematics to solve business and other real-world problems.
- To construct and discuss mathematical models.
- To use technology, such as graphing calculators and computers, to enhance their mathematical understandings and to solve application problems.

Measurable Learning Outcomes:

- Graph systems of linear equations and inequalities.
- Solve systems of linear equations and inequalities both graphically and algebraically.
- Add, subtract, and multiply, and compute the inverses of matrices.
- Use matrices to solve systems of equations, including the use of the Gauss-Jordan method.
- Solve linear programming problems using the Simplex method.
- Solve financial problems such as those involving simple and compound interest, annuities, sinking funds, and amortization formulas.
• Apply basic concepts of set theory and combinatorics to practical problems.
• Apply basic concepts of probability, including conditional probabilities and independence, to practical problems.
• Calculate statistical measures of central tendency and dispersion and make conclusions about data from these measures.

Topical Outline (major areas of coverage):
• Linear Functions.
• Systems of Linear Equations and Matrices.
• Linear Programming: the Graphical Method.
• Linear Programming: the Simplex Method.
• Mathematics of Finance.
• Sets and Counting.
• Probability.
• Statistics.
• Game Theory (optional).
• Logic (optional).

Recommended maximum class size for this course: 30

Library Resources: Online databases are available at http://www.ccis.edu/offices/library/resources.asp. You may access them from off-campus using your eServices login and password when prompted.

Prepared by:  Ann Bledsoe

Date:  March 8, 2006

NOTE: The intention of the master syllabus is to provide an outline of the contents of this course, as specified by the faculty of Columbia College, regardless of who teaches the course, when it is taught or where it is taught. Faculty members teaching this course for Columbia College are expected to facilitate learning pursuant to the course objectives and cover the subjects listed in the topical outline. However, instructors are also encouraged to cover additional topics of interest so long as those topics are relevant to the course’s subject. The master syllabus is, therefore, prescriptive in nature but also allows for a diversity of individual approaches to course material.