

*Montgomery College - Department of Mathematics
Rockville Campus*

**MA110 – Survey of College Mathematics
3 Semester Hours**

Description

A general college mathematics course whose topics include linear equations, matrix algebra, linear programming, probability, Markov chains, and mathematics of finance. The applications are primarily from business, economics, and the life sciences. Emphasis is on developing, analyzing, and interpreting mathematical models.

MA110 meets 3 hours each week.

Prerequisites

A grade of C or better in MA 101 or MA 103, appropriate score on mathematics assessment test, or consent of department.

Assessment levels: EN 101/101A, RD 120.

Topics

- I. Functions
 1. Linear and quadratic functions; applications
 2. Linear regression on the calculator
- II. Mathematics of Finance
 1. Simple and compound interest
 2. Future value and present value of an annuity
- III. Systems of Linear Equations using Matrices
 1. Gauss-Jordan elimination
 2. Reduced form of a matrix
 3. Matrix operations
 4. Inverse of a square matrix
 5. Matrix equations and systems of linear equations
- IV. Linear Inequalities and Linear Programming
 1. Systems of linear inequalities
 2. Linear programming in two dimensions: geometric approach
- V. Sets and Counting
 1. Sets and set operations
 2. Counting principles
 3. Permutations and combinations
- VI. Probability
 1. Sample spaces and probability of events
 2. Probability of union, intersection and complement of events
 3. Odds for and against events
 4. Conditional probability and independence

- 5. Bayes' formula
- VII. Markov Chains
 - 1. Properties of Markov chains
 - 2. Regular Markov chains

Text

Finite Mathematics for Business, Economics, Life Sciences, and Social Sciences; Barnett, Ziegler, and Byleen, 11th Edition; Prentice Hall