

*Montgomery College - Department of Mathematics
Rockville Campus*

**MA103 - Intermediate Algebra
3 Semester Hours**

Description An examination of algebraic skills and concepts intended to prepare students for MA 130, MA 160, MA 180. Algebraic, graphical, numerical, and verbal approaches are used in working with a variety of functions and their applications, including linear, polynomial, exponential, logarithmic, rational, and rational functions. Solve systems of equations.

For computation of tuition, this course is equivalent to four semester hours. Four hours lecture each week.

Prerequisites A grade of C or better in MA 091, MA 091A, or MA 091D; or appropriate score on the mathematics assessment test; or consent of department. Assessment level: RD 120.

Topics

- I. Functions
 - A. Relations
 - B. Definition of functions
 - C. Domain and range
 - D. Function notation
 - E. Inverse functions
- II. Linear functions and equations
 - A. Overview
 - B. Slope and intercepts
 - C. Linear systems
 - D. Linear models
- III. Quadratic functions and equations
 - A. Factoring quadratics
 - B. Solving quadratics
 - C. Graphs of quadratics
 - 1. Vertex
 - 2. Intercepts
 - D. Quadratic models
 - E. Systems of quadratic equations

- IV. Rational functions and equations
 - A. Simplify
 - B. Domain
 - C. Operations: addition, subtraction, multiplication, and division
 - D. Solve rational equations
- V. Exponential and logarithmic functions and equations
 - A. Rational exponents
 - B. Exponential functions
 - C. e
 - D. Logarithms
 - E. Growth and decay
- VI. Radical functions and equations
 - A. Simplify radicals
 - B. Add, subtract, and multiply numerical radical expressions
 - D. Domain
 - E. Radical equations
 - F. Extraneous solutions
- VII. Graphing calculators
 - A. Mechanics
 - B. Use as a tool to solve, evaluate, and analyze
- VIII. Analysis
 - A. Recognize typical examples of the functions studied
 - B. Linear, quadratic, and exponential growth
- IX. Applications
 - A. Model real world applications with the functions studied
 - B. Apply significant digits.

Text

Intermediate Algebra Graphs and Models by Bittinger, Ellenbogen & Johnson. Pearson Addison-Wesley, 2007.