

*Montgomery College - Department of Mathematics  
Rockville Campus*

**MA100 - Intermediate Algebra  
3 Semester Hours**

**Description** Development of mathematical concepts intended to prepare students for a mathematics foundation course. Algebraic, graphical, numerical, and verbal approaches in working with a variety of functions and their applications, including linear, polynomial, exponential, and logarithmic functions. Systems of equations.

MA100 meets 3 hours 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: RD120 or equivalent.

**Topics**

- I. Lines
  1. Sketching lines
  2. Slope
  3. Solving linear equations
  4. Using lines to model data
- II. Functions
  1. Overview
  2. Linear functions
  3. Function notation
- III. Exponential functions
  1. Properties of exponents
  2. Rational exponents
  3. Graphs
  4. Solving exponential equations
  5. Modeling with exponential functions
- IV. Logarithmic functions
  1. Inverse functions
  2. Logarithms
  3. Important bases:  $e$  and  $10$
  4. The power property
  5. Using logarithms to solve exponential equations
- V. Polynomial functions
  1. Expanding and factoring polynomials

2. Solving quadratics by various methods
    - a. Factoring
    - b. Taking square roots
    - c. Quadratic formula
  3. Complex numbers as solutions to quadratics
  4. Finding intercepts and the vertex of parabolas
  5. Graphing parabolas
  6. Modeling with quadratic functions
- VI. Rational functions
1. Domain
  2. Simplifying
  3. Solving rational equations
  4. Modeling with rational functions
- VII. Radical functions
1. Simplifying radical expressions
  2. Radical equations
- VIII. Systems of equations
1. 2 x 2 linear
  2. Non-linear
- IX. Graphing calculators (Note: these topics are taught throughout the course.)
1. Evaluation of functions
  2. Finding intercepts
  3. Mechanics: screen contrast, batteries, common error messages.
  4. Order of operations
  5. Menus: WINDOW, Y=, ZOOM, CALC, MATH and TABLE .
  6. Scientific notation.

Text

*INTERMEDIATE ALGEBRA 2nd edition, Functions and Authentic Applications.* Jay Lehmann, Prentice Hall, 2004.