

*Montgomery College - Department of Mathematics  
Takoma Park/Silver Spring 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, and common error messages.
  - 4. Order of operations
  - 5. Menus: WINDOW, Y=, ZOOM, CALC, MATH and TABLE.
  - 6. Scientific notation.

Text

*INTERMEDIATE ALGEBRA with Applications & Visualization, 2<sup>nd</sup> Edition* by Rockswold/Krieger. Addison Wesley Publishing Company