

*Montgomery College - Department of Mathematics
Germantown 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

Beginning and Intermediate Algebra, 3rd ed.; K. Elayn Martin-Gay,
Prentice Hall.