

*Montgomery College - Department of Mathematics
Takoma Park/Silver Spring Campus*

**MA100D - Fundamentals of Algebra
3 Semester Hours**

Description

A presentation of the fundamentals of elementary and intermediate algebra, all utilizing a graphical point of view. Includes fundamentals of algebraic manipulation such as factoring, rational expressions, roots and radicals, absolute value, exponents, and logarithms together with an introductory study of equations, inequalities, systems, and functions involving linear, quadratic, polynomial, exponential, and logarithmic. Designed for students able to accelerate their preparation for additional mathematics course work. Prepares the student for courses designated in General Education requirements.

MA100D meets 5 hours each week.

Prerequisites

Appropriate score on mathematics placement tests or a grade of A in MA 090 and previous exposure to concepts of elementary algebra, or consent of department.

Assessment level: RD 120 or equivalent.

Topics

- I. Solving linear equations and inequalities in one variable
- II. Graphing linear equations in two variables
 1. Cartesian coordinate system
 2. Slope
 3. Deriving equations of lines
- III. Solving systems of linear equations in two variables
- IV. Exponents
- V. Polynomials
 1. Basic operations with polynomials
- VI. Factoring
 1. Common factors
 2. Trinomials
 3. Difference of squares
- VII. Rational expressions
 1. Basic operations
 2. Complex fractions

- 3. Solving equations
- VIII. Quadratic equations
 - 1. Solve by factoring
 - 2. Solve by quadratic formula
 - 3. Graphing quadratic functions
- IX. Functions
 - 1. Graphs
 - 2. Domain and range
- X. Radical expressions and functions
 - 1. Rational exponents
 - 2. Simplifying rational expressions
 - 3. Basic operations
 - 4. Solving radical equations
 - 5. Complex numbers
- XI. Exponential and logarithmic functions
 - 1. Exponential functions
 - 2. Inverse functions
 - 3. Logarithmic functions
 - 4. Solving exponential and logarithmic equations
- XII. Modeling real-world applications
 - 1. Modeling with linear, quadratic, exponential, and logarithmic functions

Text

Introductory and Intermediate Algebra: Discovery and Visualization 3rd Edition by Hubbard and Robinson. Houghton Mifflin Publishing Company