



## College Algebra: Rio Salado College

(For a list of materials used in the course, please see [http://www.theNCAT.org/R2R/AcadPrac/CM/Rio\\_ColAlg\\_Mat.pdf](http://www.theNCAT.org/R2R/AcadPrac/CM/Rio_ColAlg_Mat.pdf).)

College Algebra is a one-semester, four -credit course that covers the following topics:

### Essentials of Algebra

- Algebra Building Blocks
  - Real Numbers & Notation
  - Exponents & Radicals
- Algebraic Expressions
  - Polynomials
  - Rational Expressions
- Equations and Inequalities
  - Linear & Absolute Value
  - Quadratic Equations
  - Linear Equations
- Functions
  - Functions & Graphs
  - The Algebra of Functions
- Exponents and Logarithms
  - Exponential Functions
  - Logarithmic Functions
  - Solving Equations
- Finding Solutions
  - Equations and Inequalities

### More Nonlinear Equations and Inequalities

- Nonlinear Equations
  - Solving Equations
  - Radical Equations
- Nonlinear Systems
  - Solving Systems
- Inequalities
  - Quadratic Inequalities
  - Rational Inequalities

### Nonlinear Functions & Theory of Equations

- Nonlinear Functions
  - Polynomial Functions
  - Rational Functions
- Theory of Equations
  - Polynomial Division
  - The Factor Theorem
  - Zeros of Polynomials

### Matrices and Determinants

- Determinants
  - Determinants
  - Cramer's Rule
  - Partial Fractions
- Matrices
  - The Algebra of Matrices
  - The Gauss-Jordan Method

### Induction, Sequences, and Counting

- Sequences and Series
  - Arithmetic
  - Geometric
- Induction; Binomial Theorem
  - Mathematical Induction
  - Binomial Theorem
- Counting and Probability
  - Methods of Counting
  - Probability