Introductory Algebra: University of Alabama

(For a list of materials used in the course, please see http://www.theNCAT.org/R2R/AcadPrac/CM/UA_IntroAlg_Mat.pdf.)

Introductory Algebra is a one-semester, no-credit course that covers the following topics:

The Real Number System
- Fractions
- Exponents, Order of Operations, and Inequality
- Variables, Expressions, and Equations
- Real Numbers and the Number Line
- Addition and Subtractions of Real Numbers
- Multiplication and Division of Real Numbers
- Properties of Real Numbers
- Simplifying Expressions

Linear Equations and Inequalities in One Variable
- The Addition and Multiplication Properties of Equality
- More on Solving Linear Equations
- An Introduction to Applications of Linear Equations
- Formulas and Applications from Geometry
- Ratios and proportions
- More About Problem Solving
- The Addition and Multiplication Properties of Inequality

Linear Equations in Two Variables
- Linear Equations in Two Variables
- Graphing Linear Equations in Two Variables
- The slope of a Line

Polynomials and Exponents
- Addition and Subtraction of polynomials: Graphing Simple Polynomials
- The Product Rule and Power Rules for Exponents
- Multiplication of polynomials
- Special Products
- Integer Exponents and the Quotient Rule
- Division of Polynomials
- An Application of Exponents; Scientific Notation

Factoring and Applications
- The Greatest Common Factor; Factoring by Grouping
- Factoring Trinomials
- More on Factoring Trinomials
- Special Factoring Rules
- Solving Quadratic Equations by Factoring
- Applications of Quadratic Equations
- Solving Quadratic Inequalities

Rational Expressions
- The Fundamental property of Rational Expressions
- Multiplication and Division of Rational Expressions
- The Least Common Denominator
- Addition and Subtraction of Rational Expressions
- Complex Fractions
- Solving Equations Involving Rational Expressions
- Applications of Rational Expressions

Linear Systems
- Solving Systems of Linear Equations by Graphing
- Solving Systems of Linear Equations by Substitution
- Solving Systems of Linear Equations by Elimination
- Applications of Linear Systems
- Solving Systems of Linear Inequalities

Roots and Radicals
- Evaluating Roots
- Multiplication and Division of Radicals
- Addition and Subtraction of Radicals
- Rationalizing the Denominator
- Simplifying Radical Expressions
- Solving Equations with Radicals
- Fractional Exponents

Quadratic Equations
- Solving Quadratic Equations by the Square Root Property
- Solving Quadratic Equations by Completing the Square
- Solving Quadratic Equations by the Quadratic Formula
- Complex Numbers
- More on Graphing Quadratic Equations: Quadratic Functions