

Textbook Information

Math 99 DE – Intermediate Algebra with Geometry Fall 2016

The class's textbook policy is as follows. **Students must have an intermediate algebra book but it does NOT have to be the official textbook designated for this course.** This policy is intended to lower textbook costs. Usually students can purchase a textbook for the course under \$40.

The textbook for this course is the 4th edition of Introductory and Intermediate Algebra for College Students by Robert Blitzer, Pearson, 2013

Students are welcome to use the any previous edition at a much lower cost. Students also may use other intermediate algebra books. These include any edition of intermediate algebra textbooks written by:

Charles P. McKeague
Margaret Lial
Richard N. Aufmann
Marvin L. Bittinger
Miller, O'Neil, and Hyde

Contents of Textbook

For your convenience, the sections are color coded as follows. Green topics are covered in Math 98, red topics are covered in Math 99, and black topics are not covered in Math 98 or 99.

Chapter 1 – Variables, Real Numbers, and Mathematical Models

- 1.1 Introduction to Algebra: Variables and Mathematical Models
- 1.2 Fractions in Algebra
- 1.3 The Real Numbers
- 1.4 Basic Rules of Algebra
- 1.5 Addition of Real Numbers
- 1.6 Subtraction of Real Numbers
- 1.7 Multiplication and Division of Real Numbers
- 1.8 Exponents and Order of Operations

Chapter 2 – Linear Equations and Inequalities in One Variable

- 2.1 The Addition Property of Equality
- 2.2 The Multiplication Property of Equality
- 2.3 Solving Linear Equations
- 2.4 Formulas and Percents
- 2.5 An Introduction to Problem Solving
- 2.6 Problem Solving in Geometry
- 2.7 Solving Linear Inequalities

Chapter 3 – Linear Equations in Two Variables

- 3.1 Graphing Linear Equations in Two Variables
- 3.2 Graphing Linear Equations Using Intercepts
- 3.3 Slope
- 3.4 The Slope-Intercept Form of the Equation of a Line
- 3.5 The Point-Slope Form of the Equation of a Line

Chapter 4 – Systems of Linear Equations

- 4.1 Solving Systems of Linear Equations by Graphing
- 4.2 Solving Systems of Linear Equations by the Substitution Method
- 4.3 Solving Systems of Equations by the Addition Method
- 4.4 Problem Solving Using Systems of Equations
- 4.5 Systems of Linear Equations in Three Variables

Chapter 5 – Exponents and Polynomials

- 5.1 Adding and Subtracting Polynomials
- 5.2 Multiplying Polynomials
- 5.3 Special Products
- 5.4 Polynomials in Several Variables
- 5.5 Dividing Polynomials
- 5.6 Long Division of Polynomials; Synthetic Division
- 5.7 Negative Exponents and Scientific Notation

Chapter 6 – Factoring Polynomials

- 6.1 The Greatest Common Factor and Factoring by Grouping
- 6.2 Factoring Trinomials Whose Leading Coefficient is 1
- 6.3 Factoring Trinomials Whose Leading Coefficient is Not 1
- 6.4 Factoring Special Forms
- 6.5 A General Factoring Strategy
- 6.6 Solving Quadratic Equations by Factoring

Chapter 7 – Rational Expressions

- 7.1 Rational Expressions and Their Simplification
- 7.2 Multiplying and Dividing Rational Expressions
- 7.3 Adding and Subtracting Rational Expressions with the Same Denominator
- 7.4 Adding and Subtracting Rational Expressions with Different Denominators
- 7.5 Complex Rational Expressions
- 7.6 Solving Rational Equations
- 7.7 Applications Using Rational Equations and Proportions
- 7.8 Modeling Using Variation

Chapter 8 – Basics of Functions

- 8.1 Introduction to Functions
- 8.2 Graphs of Functions
- 8.3 The Algebra of Functions
- 8.4 Composite and Inverse Functions

Chapter 9 – Inequalities and Problem Solving

- 9.1 Reviewing Linear Inequalities and Using Inequalities in Business Applications
- 9.2 Compound Inequalities
- 9.3 Equations and Inequalities Involving Absolute Values
- 9.4 Linear Inequalities in Two Variables

Chapter 10 – Radicals, Radical Functions, and Rational Exponents

- 10.1 Radical Expressions and Functions
- 10.2 Rational Exponents
- 10.3 Multiplying and Simplifying Radical Expressions
- 10.4 Adding, Subtracting, and Dividing Radical Expressions
- 10.5 Multiplying with More Than One Term and Rationalizing Denominators
- 10.6 Radical Equations
- 10.7 Complex Numbers

Chapter 11 – Quadratic Equations and Functions

- 11.1 The Square Root Property and Completing the Square; Distance and Midpoint Formulas
- 11.2 The Quadratic Formula
- 11.3 Quadratic Functions and Their Graphs
- 11.4 Equations Quadratic in Form
- 11.5 Polynomial and Rational Inequalities

Chapter 12 – Exponential and Logarithmic Functions

- 12.1 Exponential Functions
- 12.2 Logarithmic Functions
- 12.3 Properties of Logarithms
- 12.4 Exponential and Logarithmic Equations
- 12.5 Exponential Growth and Decay; Modeling Data

Chapter 13 – Conic Sections and Systems of Nonlinear Equations

13.1 The Circle

13.2 The Ellipse

13.3 The Hyperbola

13.4 The Parabola; Identifying Conic Sections

13.5 Systems of Nonlinear Equations in Two Variables

Chapter 14 – Sequences, Series, and the Binomial Theorem

14.1 Sequences and Summation Notation

14.2 Arithmetic Sequences

14.3 Geometric Sequences and Series

14.4 The Binomial Theorem

Appendices

A Mean, Median, and Mode

B Matrix Solutions to Linear Systems

C Determinants and Cramer's Rule

D Where Did That Come From? Selected Proofs