

**Course Description** 

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# Algebra II/Block – Credit Recovery

**COURSE DESCRIPTION:** In this course students will use their prior knowledge from previous courses to learn and apply Algebra II skills. This course will include topics such as functions, radical functions, rational functions, exponential and logarithmic functions, trigonometry, geometry, conic sections, systems of equations, probability, and statistics. Students will apply the skills that they learn in this course to real world situations.

# **COURSE OBJECTIVES:**

- Understand the major topics in Algebra II.
- Identify how the major topics in Algebra II relate to real world situations.
- Apply the topics in Algebra II to various problems.
- Explain how the topics in Algebra II relate to the greater context of mathematics.

## **PREREQUISITES:** None

**COURSE LENGTH:** Two Semesters

**REQUIRED TEXT:** No required textbook for this course.

**MATERIALS** LIST: Java is needed for the embedded graphing calculator applet (GCalc). A free download is available at <a href="http://www.java.com/en/download/">http://www.java.com/en/download/</a>.

## **COURSE OUTLINE:**

## Unit 1: Linear and Quadratic Functions

- Section 1 Functions and Relations
- Section 2 Solving Linear Equations and Inequalities
- Section 3 Writing and Graphing Linear Equations and Inequalities
- Section 4 Graphing Quadratic Functions
- Section 5 Solving Quadratic Equations and Inequalities
- Section 6 Graphing Zeros and Min/Max Values
- Section 7 Determining a Quadratic Function

## **Unit 2: Radical Functions**

- Section 1 Roots and Properties of Exponents
- Section 2 Graphing Radical Functions and Domain and Range
- Section 3 Solving Radical Equations

## **Unit 3: Rational Functions**

- Section 1 Direct and Inverse Variation
- Section 2 Graphing Rational Functions and Domain and Range
- Section 3 Solving Rational Equations

## Unit 4: Exponential and Logarithmic Functions



# Course Description

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- Section 1 Comparing Exponential and Logarithmic Functions
- Section 2 Graphing Exponential Functions and Domain and Range
- Section 3 Exponential Growth and Decay
- Section 4 Graphing Logarithmic Functions and Domain and Range
- Section 5 Solving Exponential and Logarithmic Equations

## **Unit 5: Trigonometric Functions**

- Section 1 Right Triangle Trigonometry
- Section 2 Basic Angles and Radian Measure
- Section 3 Trigonometric Values in all Four Quadrants
- Section 4 Inverse Trigonometric Values
- Section 5 Graphing Trigonometric Functions

#### Semester 1 Exam

#### **Unit 6: Systems of Equations and Inequalities**

- Section 1 Matrices and Determinants
- Section 2 Systems of Equations
- Section 3 Systems of Inequalities
- Section 4 Systems of Equations with Three Variables

## **Unit 7: Geometry**

- Section 1 Geometry of Quadrilaterals
- Section 2 Geometry of Triangles
- Section 3 Geometry of Circles

#### **Unit 8: Conic Sections**

- Section 1 Introduction to Conic Sections
- Section 2 Parabolas
- Section 3 Circles
- Section 4 Ellipses
- Section 5 Hyperbolas

## **Unit 9: Probability and Statistics**

- Section 1 Introduction to Probability
- Section 2 Permutations and Combinations
- Section 3 Binomial Theorem
- Section 4 Statistics
- Section 5 The Normal Distribution

#### Unit 10: Discrete Mathematics: Sequences and Series

- Section 1 Arithmetic Sequences and Series
- Section 2 Geometric Sequences and Series

# Semester 2 Exam