Algebra 2 - Course Outline

September 4 - 14
Chapter 1: Equations and Inequalities

1.1 Real Numbers and Number Operations
1.2 Algebraic Expressions and Models
1.3 Solving Linear Equations
1.4 Rewriting Equations and Formulas
1.5 Problem Solving Using Algebraic Models
1.6 Solving Linear Inequalities
1.7 Solving Absolute Value Equations and Inequalities

September 17 - 25
Chapter 2: Linear Equations and Functions

2.1 Functions and Their Graphs
2.2 Slope and Rate of Change
2.3 Quick Graphs of Linear Equations
2.4 Writing Equations of Lines
2.5 Correlation and Best-Fitting Lines
2.6 Linear Inequalities in Two Variables
2.7 Piecewise Functions
2.8 Absolute Value Functions

September 26 – October 12
Chapter 3: Systems of Linear Equations and Inequalities

3.1 Solving Linear Systems by Graphing
3.2 Solving Linear Systems Algebraically
3.3 Graphing and Solving Systems of Linear Inequalities
3.4 Linear Programming
3.5 Graphing Linear Equations in Three Variables
3.6 Solving Systems of Linear Equations in Three Variables

October 15 – November 2
Chapter 4: Matrices and Determinants

4.1 Matrix Operations
4.2 Multiplying Matrices

(Chapter 4 continued)
4.3 Determinants and Cramer's Rule
4.4 Identity and Inverse Matrices
4.5 Solving Systems Using Inverse Matrices

November 5 – December 7
Chapter 5: Quadratic Functions

5.1 Graphing Quadratic Functions
5.2 Solving Quadratic Equations by Factoring
5.3 Solving Quadratic Equations by Finding Square Roots
5.4 Complex Numbers
5.5 Completing the Square
5.6 The Quadratic Formula and the Discriminant
5.7 Graphing and Solving Quadratic Inequalities
5.8 Modeling with Quadratic Functions

December 10 – January 11
Chapter 6: Polynomials and Polynomial Functions

6.1 Using Properties of Exponents
6.2 Evaluating and Graphing Polynomial Functions
6.3 Adding, Subtracting, and Multiplying Polynomials
6.4 Factoring and Solving Polynomial Equations
6.5 The Remainder and Factor Theorems
6.6 Finding Rational Zeros
6.7 Using the Fundamental Theorem of Algebra
6.8 Analyzing Graphs of Polynomial Functions
6.9 Modeling with Polynomial Functions

January 14 – January 17 Semester 1 Exam

January 21 – February 8
Chapter 7: Powers, Roots, and Radicals

7.1 *n*th Roots and Rational Exponents
7.2 Properties of Rational Exponents
7.3 Power Functions and Function Operations
7.4 Inverse Functions
7.5 Graphing Square Root and Cube Root Functions
7.6 Solving Radical Equations
7.7 Statistics and Statistical Graphs

February 11 – March 1
Chapter 8: Exponential and Logarithmic Functions

8.1 Exponential Growth
8.2 Exponential Decay
8.3 The number *e*
8.4 Logarithmic Functions
8.5 Properties of Logarithms
8.6 Solving Exponential and Logarithmic Equations
8.7 Modeling with Exponential and Power Functions
8.8 Logistic Growth Functions

March 4 - 15
Chapter 9: Rational Equations and Functions

9.1 Inverse and Joint Variation
9.2 Graphing Simple Rational Functions
9.3 Graphing General Rational Functions
9.4 Multiplying and Dividing Rational Expressions
9.5 Addition, Subtraction, and Complex Fractions
9.6 Solving Rational Equations

March 18 – April 5
Chapter 10: Quadratic Relations and Conic Sections
10.1 The Distance and Midpoint Formulas
10.2 Parabolas
10.3 Circles
10.4 Ellipses
10.5 Hyperbolas
10.6 Graphing and Classifying Conics
10.7 Solving Quadratic Systems

April 8 – April 19
Chapter 11: Sequences and Series

11.1 An Introduction to Sequences and Series
11.2 Arithmetic Sequences and Series
11.3 Geometric Sequences and Series
11.4 Infinite Geometric Series
11.5 Recursive Rules for Sequences

April 22 – May 3
Chapter 12: Probability and Statistics

12.1 The Fundamental Counting Principle and Permutations
12.2 Combinations and the Binomial Theorem
12.3 An Introduction to Probability
12.4 Probability of Compound Events
12.5 Probability of Independent and Dependent Events
12.6 Binomial Distributions
12.7 Normal Distributions

May 6 – May 17
Chapter 13: Trigonometric Ratios and Functions

13.1 Right Triangle Trigonometry
13.2 General Angles and Radian Measure
13.3 Trigonometric Functions of Any Angle
13.4 Inverse Trigonometric Functions
13.5 The Law of Sines
13.6 The Law of Cosines
13.7 Parametric Equations and Projectile Motion

May 20 – May 31

Chapter 14: Trigonometric Graphs, Identities, and Equations
14.1 Graphing Sine, Cosine, and Tangent Functions
14.2 Translations and Reflections of Trigonometric Graphs

14.3 Verifying Trigonometric Identities
14.4 Solving Trigonometric Equations
14.5 Modeling with Trigonometric Functions
14.6 Using Sum and Difference Formulas
14.7 Using Double- and Half-Angle Formulas

June 3 - 6 Semester 2 Exam