

# NORTHVIEW HIGH SCHOOL SYLLABUS

## Algebra II

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Math CATS Hours:      Tuesdays & Thursdays: 2:45-3:45

### TEXTS:

Bellman, Allan E., Chavis Bragg, Sadie, Charles, Randall I., Hall, Basia, Handlin Sr., William G., and Kennedy, Dan. Prentice Hall Mathematics Algebra 2. Pearson, 2004.

### COURSE OVERVIEW:

This course is designed for the college-bound student. In this course, the basic concepts from Algebra I are enriched. Topics studied include graphing, analyzing, and interpreting functions including polynomial, absolute value, rational, exponential, and logarithmic functions; systems of linear equations and inequalities; matrices; exponents; radicals; sequences and series.

### REQUIREMENTS:

Notebook – 3 Ring Binder  
Scientific or Graphing Calculator (TI-83 or TI-84)  
\*\*Graphing calculator is highly recommended\*\*

### GRADING POLICY:

- As a non-unit based course each semester will have one final cumulative exam.
- You will have one opportunity each semester to retake a chapter test.
- Retake opportunities must meet the following requirements:
  - Meet with the teacher to go over incorrect test answers and make test corrections
  - Complete corrections for quizzes in that chapter
  - Complete additional practice problems
- The retake score for a given test will be the score that is recorded in the grade book.
- The Algebra II classes will use the following scale for their grades:

Practice Assignments	10%
Preliminary Assessments	90%

The culmination of the above grades will comprise 80% of the semester grade. The other 20% will be the cumulative semester exam.

### ASSESSMENTS:

Assignments consist of Concept quizzes, notebook grades, in-class work and homework.

- Assignments vary in point value.

Assessments consist of Quizzes (50 points each) and Tests (100 points each)

### SCHEDULE:

#### Semester 1:

Chapter P (Review of prerequisite skills) (15 days)

- Properties of exponents
- Simplifying radicals
- Quadratic formula
  - Quiz above
- Multiplying polynomials
- Factoring - GCF & binomials where  $a = 1$ 
  - Quiz
- Writing linear equations for lines and graphing lines (MC)
  - Quiz

- Algebraic expressions - simplifying/evaluation of
- Writing equations/formulas for another variable (i.e.  $F = ma$  & geometry formulas) (Record restrictions on the variables.)
- Solving simple equations
  - Quiz

Chapter 1: Lessons 1.3 – 1.5 (5 classes)

- Lesson 1.3: Solving Equations
- Lesson 1.4: Solving Inequalities
- Lessons 1.5: Solving Absolute Value Equations Inequalities

Chapter 2: Lessons 2.1, 2.2, 2.4 – 2.6 (12 classes)

- Families of functions portfolio
- Lesson 2.1: Relations & Functions
- Test on Chapter 1 and Functions
- Lesson 2.2 Linear Equations
- Lesson 2.4 Using Linear Models
- Lessons 2.5 & 2.6: Absolute Value Functions
- Chapter 2 Test

Chapter 5: Lessons 5.1 – 5.3 and 5.5 - 5.8 (13 classes)

- Lesson 5.1: Modeling Data with Quadratic Functions
- Lesson 5.2: Properties of Parabolas
- Lesson 5.4: Factoring (w/ 'a' not equal to 1)
- Lesson 5.5: Solving Quadratic Equations
- Lesson 5.7: Completing the square
- Lesson 5.8: Quadratic Formula
- Chapter 5 Test (real numbers)
- Lesson 1.1 Properties of Real numbers
- Lesson 5.6: Complex numbers
- Lesson 5.8: Using the discriminant
- Quiz on Quadratic Functions with non-real solutions

Chapter 3: Lessons 3.1 – 3.4 and 3.6 (12 classes)

- Lesson 3.1: Graphing of Systems of Equations
- Lesson 3.2: Solving Systems Algebraically
- Lesson 2.7: Two-Variable Inequalities
- Lesson 3.3: Systems of Inequalities
- Lesson 3.6: Systems with Three Variables
- Lesson 5.1: Fitting a Quadratic function to 3 points
- Test on Chapter 3
- Lesson 3.4: Linear Programming & Parking lot activity

If time permits at the end of semester 1 – Chapter 4: Lessons 4.1 – 4.3 and 4.5

## Semester 2

ACT chapter

- Review chapter P
- Probability
- Trig - special right triangles

Chapter 6: Lessons 6.1 – 6.6

- Lesson 6.1: Polynomial Functions

- Lesson 6.2: Polynomial & Linear Factors
- Lesson 6.3: Dividing Polynomials
- Lesson 6.4: Solving Polynomial Equations
- Lesson 6.5: Theorems about roots of polynomial equations
- Lesson 6.6: The Fundamental Theorem of Algebra

Chapter 7: Lessons 7.1 – 7.8

- Lesson 7.1: Roots and Radical expressions
- Lesson 7.2: Multiplying and Dividing Radical Expressions
- Lesson 7.3: Binomial Radical expressions
- Lesson 7.4: Rational Exponents
- Lesson 7.5: Solving Square root and other radical equations

Test on 7.1 - 7.5

- Lesson 7.6: Function operations
- Lesson 7.7 Inverse Relations and functions

Quiz Lesson 7.6 & 7.7

Families of Functions - Graphing

Square Root, Exponential, Logs

Chapter 8: Lessons 8.1 – 8.6

- Lesson 7.8: Graphing square root and other radical functions
- 8.1: Exploring Exponential Models
- Lesson 8.2: Properties of Exponential functions
- Lesson 8.3 Logarithmic functions as inverses
- Lesson 8.4: Properties of Logarithms
- Lesson 8.5 Exponential and logarithmic equations
- Lesson 8.6 Natural Logarithms

Chapter 9: Lessons 9.1 – 9.6

- Lesson 9.1: Inverse Variation (Include 2.3 here)
- Lesson 9.2: The reciprocal function family
- Lesson 9.3: Rational functions and their graphs
- Lesson 9.4: Rational expressions
- Lesson 9.5: Adding and subtracting rational expressions
- Lesson 9.6: Solving Rational Equations

Chapter 13: Lessons 13.1 – 13.8

- Lesson 13.1: Exploring periodic data
- Lesson 13.2: Angles and the unit circle
- Lesson 13.3: Radian measure
- Lesson 13.4: The sine function
- Lesson 13.5: The cosine function
- Lesson 13.6: The tangent function
- Lesson 13.7: Reciprocal Trigonometric Functions

Chapter 13 Test

Chapter 14: 14.1, 14.4 & 14.5

- Lesson 14.1: Trig Identities
  - Lesson 14.4: Area and the Law of Sines
  - Lesson 14.5: The law of cosines
- Quiz 14.1, 14.4 & 14.5

Chapter 11: Lessons 11.1 – 11.5

- Lesson 11.1: Mathematical patterns
- Lesson 11.2: Arithmetic Sequences
- Lesson 11.3: Geometric Sequences
- Lesson 11.4: Arithmetic Series
- Lesson 11.5: Geometric Series