

Syllabus For Algebra II

Northwest Academy

This course expands on the basics of Algebra into more difficult and multistep problems. We will explore many different types of functions and begin the exploration of complex numbers that will be used in later math courses. Students will be introduced to the material through online videos and then will be provided with online and offline practice opportunities.

Systems of Equations and Inequalities

- Solving Systems
- Solving Systems of Inequalities
- Solving Systems with 3 Variables
- Nonlinear Systems

Functions and Their Graphs

- Function Introduction
- Function Expressions
- Domain and Range
- Recognizing Functions
- Composing Functions
- Function Inverses
- Piecewise Functions
- Shifting and Reflecting Functions
- Properties and Features of Functions
- Comparing and Interpreting
- Undefined and Indeterminate Functions

Polynomial and Rational Functions

- Factoring Quadratics
- Completing the Square
- Quadratic Inequalities
- Adding and Multiplying
- Dividing
- Synthetic Division
- Polynomial Remainder Theorem
- Polynomial Graphs and End Behavior
- Binomial Theorem
- Simplifying Rational Expressions
- Rational Functions
- Asymptotes

Rational Expressions

- Simplifying Rational Expressions
- Adding and Subtracting Rational Expressions
- Graphing Rational Functions
- Solving Rational Equations

Multiplying and Dividing Rational Expressions

- Exponential and Logarithmic functions
- Exponential Growth and Decay
- Modeling with Exponential Functions
- Logarithmic Functions
- Logarithmic Equations
- Continuous compounding and e

Logarithms

- Logarithms basics
- Logarithmic Properties
- Natural Logarithms

Imaginary and Complex Numbers

- Imaginary unit i
- Complex Numbers

Conic Sections

- Conic Section Basics
- Circles
- Ellipses
- Parabolas
- Hyperbolas

Matrices

- Basics of Matrices
- Multiplying Matrices