### Algebra II Course Syllabus

### Starting with a review of basic algebra, this course will cover polynomials, quadratic equations, exponential and logarithmic relations, and probability and statistics. This course is aligned with the Ohio Common Core State Standards.

### Pre-Requisites: Algebra I

### The following are the lessons that are required to be completed for the course...Module 01: Review of Algebra

### 01.00 Introduction and Pretest

### 01.01 Algebra 1 Review

### 01.02 Introduction to Functions

### 01.03 Module One Quiz

### 01.04 Graphing Linear Equations and Inequalities

### 01.05 Writing the Equation of a Line

### 01.06 Comparing Functions

### 01.07 Module One Review and Practice Test

### 01.08 Discussion-Based Assessment

### 01.09 Module One Test

### Module 02: Rational, Complex, and Polynomials

### 02.00 Module Two Pretest

### 02.01 Rational Exponents

### 02.02 Properties of Rational Exponents

### 02.03 Solving Radical Equations

### 02.04 Module Two Quiz

### 02.05 Complex Numbers

### 02.06 Operations of Complex Numbers

### 02.07 Review of Polynomials

### 02.08 Polynomial Operations

### 02.09 Module Two Review and Practice Test

### 02.11 Module Two Test

### Module 03: Factoring and Quadratics

### 03.00 Module Three Pretest

### 03.01 Greatest Common Factors and Special Products

### 03.02 Factoring by Grouping

### 03.03 Sum and Difference of Cubes

### 03.04 Graphing Quadratics

### 03.05 Module Three Quiz

### 03.06 Completing the Square

### 03.07 Solving Quadratic Equations

### 03.08 Solving Quadratic Equations with Complex Solutions

### 03.09 Investigating Quadratics

### 03.10 Module Three Review and Practice Test

### 03.12 Module Three Test

### Module 04: Dividing and Solving Polynomials

### 04.00 Module Four Pretest

### 04.01 Polynomial Long Division

### 04.02 Polynomial Synthetic Division

### 04.03 Theorems of Algebra

### 04.04 Rational Root Theorem and Descartes' Rule of Signs

### 04.05 Solving Polynomial Equations

### 04.06 Module Four Quiz

### 04.07 Graphing Polynomial Functions

### 04.08 Polynomial Identities and Proofs

### 04.09 Module Four Review and Practice Test

### 04.11 Module Four Test

### Module 05: Rational Expressions

### 05.00 Module Five Pretest

### 05.01 Simplifying Rational Expressions

### 05.02 Multiplying and Dividing Rational Expressions

### 05.03 Adding and Subtracting Rational Expressions

### 05.04 Simplifying Complex Fractions

### 05.05 Module Five Quiz

### 05.06 Discontinuities of Rational Expressions

### 05.07 Asymptotes of Rational Functions

### 05.08 Solving Rational Equations

### 05.09 Applications of Rational Equations

### 05.10 Segment One Honors Project

### 05.11 Module Five Review and Practice Test

### 05.12 Discussion-Based Assessment

### 05.13 Module Five Test

### 05.15 Segment One Exam Review

### 05.16 Segment One Exam

### Module 06: Systems and Equations and Inequalities

### 06.00 Module Six Pretest

### 06.01 Solving Systems of Equations Algebraically

### 06.02 Solving Systems of Non-Linear Equations

### 06.03 Graphing Systems of Linear Equations

### 06.04 Module Six Quiz

### 06.05 Graphing Systems of Non–Linear Equations

### 06.06 Module Six Review and Practice Test

### 06.07 Discussion-Based Assessment

### 06.08 Module Six Test

### Module 07: Exponential and Logarithmic Functions

### 07.00 Module Seven Pretest

### 07.01 Exponential Functions

### 07.02 Logarithmic Functions

### 07.03 Properties of Logarithms

### 07.04 Solving Exponential Equations with Unequal Bases

### 07.05 Module Seven Quiz

### 07.06 Graphing Exponential Functions

### 07.07 Graphing Logarithmic Functions

### 07.08 Exponential and Logarithmic Functions

### 07.09 Module Seven Review and Practice Test

### 07.11 Module Seven Test

### Module 08: Sequences and Series

### 08.00 Module Eight Pretest

### 08.01 Arithmetic Sequences

### 08.02 Arithmetic Series

### 08.03 Geometric Sequences

### 08.04 Geometric Series

### 08.05 Module Eight Quiz

### 08.06 Sigma Notation

### 08.07 Infinite, Convergent, and Divergent Series

### 08.08 Graphing Sequences and Series

### 08.09 Module Eight Review and Practice Test

### 08.11 Module Eight Test

### Module 09: Statistics

### 09.00 Module Nine Pretest

### 09.01 Events and Outcomes in a Sample Space

### 09.02 Independent Probability

### 09.03 Conditional Probability

### 09.04 Module Nine Quiz

### 09.05 Normal Distribution

### 09.06 Models of Populations

### 09.07 Using Surveys

### 09.08 Using Experiments

### 09.09 Module Nine Review and Practice Test

### 09.11 Module Nine Test

### Module 10: Trigonometry

### 10.00 Module Ten Pretest

### 10.01 Introduction to the Unit Circle

### 10.02 Unit Circle and the Coordinate Plane

### 10.03 Module Ten Quiz

### 10.04 Trigonometric Functions with Periodic Phenomena

### 10.05 Pythagoras, Trigonometry, and Quadrants

### 10.06 Functions of All Types

### 10.07 Segment Two Honors Project

### 10.08 Module Ten Review and Practice Test

### 10.10 Module Ten Test

### 10.12 Segment Two Exam Review

### 10.13 Segment Two Exam

### To achieve success, students are expected to submit work in each course weekly. Students can learn at their own pace; however, “any pace” still means that students must make progress in the course every week and complete the course by the end of the year. To measure learning, students complete self-checks, practice lessons, multiple choice questions, projects, discussion-based assessments, and discussions. Students are expected to maintain regular contact with teachers; the minimum requirement is monthly. When teachers, students, and parents work together, students are successful.