# Bow High School - Course Overview

| |
|---|
| **Course Title: Integrated Algebra II** |
| **Department: Mathematics** |
| **Credits: 1** |
| **Grades: 9-12** |

**Course Description:**

- At Bow High School, Integrated Algebra II is the third of a sequence of three courses that will cover the curriculum of a traditional Algebra I, Geometry, and Algebra II sequence using a non-traditional approach. The philosophy of the sequence is that algebraic thought, geometric thought, and data analysis are naturally connected. Successful completion of the three-year sequence will prepare students to pursue Pre-Calculus. Integrated Algebra II is a course in which students will explore linear, absolute value, polynomial, exponential, and rational relationships through solving and graphing. An understanding of the number system will be extended to include complex numbers. Communication of mathematics in both written and oral form will be required, concurrently with the appropriate use of technology such as Desmos and the TI-84 graphing calculator.

**School Competencies:**

- Applied Mathematical Modeling (Problem Solving & Analysis - Foundational)
- Critical Thinking (Problem Solving & Analysis - Foundational)
- Interpretation (Problem Solving & Analysis - Foundational)
- Viable Technological Usage (Problem Solving & Analysis - Foundational)
- Logical Processing (Problem Solving & Analysis - Foundational)

**Course Competencies:**

- **Functions:** Given a mathematical relationship, demonstrate an understanding of relations and functions by using various representations.
- **Growth Functions/Polynomials:** Given various representations of functions, illustrate and analyze polynomial and exponential functions algebraically and graphically.
- **Transformations:** Given a spectrum of the nine parent functions, select/create, apply and transform these parent functions algebraically and graphically.
- **Factoring and Quadratic Equations:** Given nonlinear algebraic equations, analyze and solve for the unknown(s) using appropriate methods (factoring, graphing, the quadratic formula, completing the square, etc.).
- **Radicals & Complex Numbers:** Given scenarios involving operations with radical or complex numbers, compute and analyze the reasonableness of the solution(s).
- **Systems and Linear Programming:** Given linear and nonlinear systems, solve for unknowns using various methods including graphing, algebraic, and matrices and use systems to solve real-world optimization functions.
- **Rational Functions:** Given rational functions, solve for the unknown using proper operations

and analysis of the expression.