Topics in Algebra II

- Properties and Operations with Real Numbers
- Order of Operations
- Exponents (integral and rational)
- Scientific Notation
- Formulas
- Linear Equations: Solving, graphing, applications, finding slope, slope-intercept form, point-slope form and studying linear functions
- Solving Systems of two linear equations in two variables and applications
- Solving larger systems of equations with three or more variables *
- Linear Inequalities: Solving, graphing and applications
- Solving Systems of linear inequalities *
- Solving Absolute Value Equations and Inequalities
- Functions: notation, evaluating, domain/range, vertical line test
- Quadratic Equations: Solving using factoring, square root method, completing the square and quadratic formula, graphing, applications, and studying quadratic functions
- Rewriting equations in Quadratic Form and solving them
- Solving Systems of nonlinear Equations in two or more variables *
- Operations with Polynomials including long division
- Synthetic division*
- Factoring Polynomials including factoring by grouping, difference of squares, sum and difference of cubes and perfect square trinomials
- Polynomial Equations: solving, finding zeroes, rates of change, intercepts, and analyzing polynomial functions*
- Rational Expressions: operations with rational expressions, simplifying complex fractions, solving equations with rational expressions and applications.
- Roots and Radicals
- Operations with Radicals, simplifying, rationalizing the denominator, and solving equations with radicals
- Complex numbers and operations with complex numbers
- Exponential and Logarithmic functions*
- Conic Sections*
- Trigonometric functions and angles*
- Incorporating the use of the graphing calculator as a technology tool*

Optional topics:
- Sets, set-builder notation, union and intersection
- Interval notation
- Cubic, Absolute Value and Square Root functions
- Probability*
- Matrix Operations*
- Graphing rational functions, finding asymptotes*
- Composition of functions and finding the inverse of a function*
- Sequences and Series*

* Topics not covered at Elgin Community College in Intermediate algebra but part of the curriculum in Algebra II in high school.