COURSE TITLE: Algebra I
COURSE LENGTH: 1 year
COURSE CREDIT: 1 credit

COURSE TYPE: required
GRADE LEVEL: 8, 9
PREREQUISITE: Pre-Algebra

COURSE GOALS:

1. Students will model real-life situations by writing and evaluating expressions using exponents and order of operations that they can check themselves.
2. Students will define real numbers as well as compute the addition, subtraction, multiplication, and division of these numbers.
3. Students will use properties of equality to solve one-step, two-step, and multi-step equations in one variable and will write and evaluate ratios and proportions including percentages.
4. Students will graph linear equations and functions in a variety of ways, interpreting how changes in the equations change their graph, and relating their graphs to real world problems.
5. Students will express linear equations in multiple ways and model those equations with a line of fit.
6. Students will apply the properties of inequalities while solving multi-step and compound inequalities including problems with absolute value and two variables.
7. Students will break down linear systems by graphing, substituting, or eliminating as well as graphing systems of inequalities.
8. Students will apply properties of exponents by reconstructing expressions and writing and graphing exponential functions.
9. Students will identify, classify, add, subtract, and multiply polynomials as well as write polynomials to describe and solve real world problems.
10. Students will model quadratic function and compare linear, exponential, and quadratic models.

COURSE CONTENT:

1. Expressions, equations, and functions
2. Properties of real numbers
3. Solving linear equations
4. Graphing linear equations and functions
5. Writing linear equations
6. Solving and graphing linear inequalities
7. Systems of equations and inequalities
8. Exponents and exponential functions
9. Polynomials and factoring
10. Quadratic equations and functions