

**Department:** Math  
**Revised:** April 2017

### **Mission Statement**

Every student can and should learn higher level mathematics. We will provide a variety of instructional methods and relearning opportunities for students to find success.

### **How We Will Achieve Our Mission**

- All students are expected to complete a standards aligned algebra and geometry curriculum.
- All students will be held to a high standard of learning with relearning opportunities and reassessment opportunities available to those who do not meet the standards initially.
- All students will have the opportunity to earn credit at the post-secondary level while completing high school graduation requirements.

### **Course: Introduction to College Mathematics (Dual Credit)**

#### Number Theory and the Real Number System

Students understand Number Theory and the concepts of Prime and Composite Numbers

Students understand Order of Operations (PEMDAS)

Students understand the concepts of Real Numbers and their properties and can identify and use Rational and Irrational Numbers, Integers, Exponents and Scientific Notation

Students understand and can identify patterns of Arithmetic and Geometric Sequences

#### Algebra: Equations and Inequalities

Students understand and are able to translate verbal expressions to algebraic expressions and vice versa.

Students will solve Linear Equations and proportions in one variable and the applications to real life problems.

Students will understand and apply a step by step process to solve Linear Inequalities

Students will understand the different ways to solve Quadratic Equations through the Quadratic Formula, Graphing, and by Factoring to Prime/Linear factors.

#### Algebra: Graphs, Functions, and Linear Systems

Students will understand and be able to graph Linear Functions

Students will understand and apply various methods to solve Systems of Linear equations, using Graph and Check, Substitution, and Linear Combinations.

Students will understand how to graph Systems of Linear Inequalities in two variables, and their real life applications.

Students will understand and apply the basic concepts of Linear programming.

Students will generate various sets of data and apply Mathematical Models to fit the graphs of the data, and use their models to interpolate and extrapolate predictions.

#### Consumer Mathematics and Financial Management

Students will understand the basics of financial Management, including Percents, Sales Tax and Income Tax.

Students will understand and compute Simple and Compound Interest

Students will understand the basics of Annuities, Stocks and Bonds, Installment Loans, Amortization Schedules, and Credit Cards

#### Measurement

Students will understand the various Systems of Measurement, including the Metric and English Systems to measure Length, Area, and Volume.

Students will understand and apply the various Systems of measurement of Weight and Temperature.

#### Geometry

Students will understand the fundamental concepts of Euclidean Geometry, including Points, Lines, Planes, and Angles.

Students will understand and apply the fundamental properties of Triangles, Polygons, Perimeter, Area, Volume, and Tessellations.

Students will understand the basic properties and Functions of Right Triangle Trigonometry.

Students will understand the basics and applications of Non-Euclidean Geometry.

#### Counting Methods and Probability Theory

Students will understand and apply the Fundamental Counting Principle, Permutations, and Combinations.

Students will understand and apply the Fundamentals of Probability.

Students will understand and apply the concepts of NOT, OR, AND, and Conditional Probability.

Students will understand the concept of Expected Value and apply it to real life as well as theoretical situations.

#### Statistics

Students will understand the concepts of Sampling, Frequency Distributions, and the various displays and graphs of each.

Students will understand the different Measures of Central Tendency and Measures of Dispersion.

Students will understand the process of Problem Solving using the Normal Distribution.

Students will understand and apply the concepts of Correlation, Scatter Plots and Regression Lines.