CCGPS Coordinate Algebra:

The fundamental purpose of Coordinate Algebra is to formalize and extend the mathematics that students learned in the middle grades. The critical areas, organized into units, deepen and extend understanding of linear relationships, in part by contrasting them with exponential phenomena, and in part by applying linear models to data that exhibit a linear trend. Coordinate Algebra uses algebra to deepen and extend understanding of geometric knowledge from prior grades. The final unit in the course ties together the algebraic and geometric ideas studied. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.

CCGPS Analytic Geometry:

The focus of Analytic Geometry on the coordinate plane is organized into 6 critical areas. Transformations on the coordinate plane provide opportunities for the formal study of congruence and similarity. The study of similarity leads to an understanding of right triangle trigonometry and connects to quadratics through Pythagorean relationships. The study of circles uses similarity and congruence to develop basic theorems relating circles and lines. The need for extending the set of rational numbers arises and real and complex numbers are introduced so that all quadratic equations can be solved. Quadratic expressions, equations, and functions are developed; comparing their characteristics and behavior to those of linear and exponential relationships from Coordinate Algebra. Circles return with their quadratic algebraic representations on the coordinate plane. The link between probability and data is explored through conditional probability. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.

CCGPS Advanced Algebra:

It is in Advanced Algebra that students pull together and apply the accumulation of learning that they have from their previous courses, with content grouped into six critical areas, organized into units. They apply methods from probability and statistics to draw inferences and conclusions from data. Students expand their repertoire of functions to include polynomial, rational, and radical functions. They expand their study of right triangle trigonometry to model periodic phenomena. And, finally, students bring together all of their experience with functions and geometry to create models and solve contextual problems. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.

CCGPS Pre-Calculus:

Pre-Calculus focuses on standards to prepare students for a more intense study of mathematics. The critical areas organized in seven units delve deeper into content from previous courses. The study of circles and parabolas is extended to include other conics such as ellipses and hyperbolas. Trigonometric functions are further developed to include inverses, general triangles and identities. Matrices provide an organizational structure in which to represent and solve complex problems. Students expand the concepts of complex numbers and the coordinate plane to represent and operate upon vectors. Probability rounds out the course using counting methods, including their use in making and evaluating decisions. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.

Statistical Reasoning:

The course provides experiences in statistics beyond the CCGPS sequence of courses, offering students opportunities to strengthen their understanding of the statistical method of inquiry and statistical simulations. Students will formulate statistical questions to be answered using data, will design and implement a plan to collect the appropriate data, will select appropriate graphical and numerical methods for data analysis, and will interpret their results to make connections with the initial question. Topics include representing data graphically and numerically, comparing distributions, sampling techniques, developing surveys, experimental design, correlation, regression, and simulation.

Advanced Placement Statistics

Advanced Placement Statistics is an introductory course in statistics that follows the course outline developed by the College Board. The course covers the themes of exploring data, sampling and experimentation, anticipating patterns, and statistical inference. The purpose of the AP course in statistics is to introduce students to the major concepts and tools for collecting, analyzing and drawing conclusions from data. Students are exposed to four broad conceptual themes. One, students will explore data: describing patterns and departures from patterns. Two, students will study sampling and experimentation: planning and conducting a study. Three, students will learn to anticipate patterns: exploring random phenomena using probability and simulation. Finally, students will use statistical Inference: estimating population parameters and testing hypotheses.

Advanced Placement Calculus AB

This course is designed for those students who have a thorough knowledge of college preparatory mathematics. It provides a study of differential and integral calculus with applications. This course will follow the guidelines set by the College Board Advanced Placement Program. Students should be able to work with functions represented in a variety of ways: graphical, numerical, analytical, or verbal. They should understand the connections among these representations. Students should understand the meaning of the derivative in terms of a rate of change and local linear approximation, and should be able to use derivatives to solve a variety of problems. Students should understand the meaning of the definite integral both as a limit of Riemann sums and as the net accumulation of change, and should be able to use integrals to solve a variety of problems. Students should understand the relationship between the derivative and the definite integral as expressed in both parts of the Fundamental Theorem of Calculus.

Advanced Placement Calculus BC

Conforms to College Board topics for the Advanced Placement Calculus BC Examination. Covers Advanced Placement Calculus AB topics and includes vector functions, parametric equations, conversions, parametrically defined curves, tangent lines, and sequence and series.

Math Support:

The purpose of the Math Support class is to address the needs of students who have traditionally struggles in mathematics by providing the additional time and attention they need in order to successfully complete their regular grade-level mathematics course without failing. Math Support is an elective class that is taught concurrently with the student's regular mathematics class.

ACCEL Statistics/Calculus

Calculus is a first course in the techniques and theory of the calculus. Topics include: limits, continuity, differentiation and integration, applications of derivatives and integrals. Statistics is a basic course in elementary statistics dealing with frequency distributions, means, deviations, variances, analysis of variance, correlations and interpretations of statistical findings. The

emphasis is on applications rather than on theory, and both calculator and computer techniques will be stressed

ACCEL College Algebra/Trigonometry

College Algebra is a functional approach to algebra that incorporates the use of appropriate technology. Emphasis will be placed on the study of linear, quadratic, piece-wise defined, rational, polynomial, exponential and logarithmic functions, their graphs and applications. The Trigonometry course is a study of the trigonometric functions and their inverses as well as further study of complex numbers.