Department:
Math

Graduation Requirements:
3 credits

Course Offerings:
Algebra I   *1 credit*
Algebra I students will have a quick review of basic algebraic concepts, such as variables, order of operations, exponents and problem solving skills. They will gain a thorough introduction to functions, solving linear equations and inequalities, solving systems of equations and inequalities, operations on rational and irrational expressions and factoring polynomials. The main purpose of the course is to give students a thorough introduction to linear functions and quadratic equations. They will learn about the operations associated with the two, such as factoring and graphing.

Algebra I Honors   *1 credit*
Algebra I students will have a quick review of basic algebraic concepts, such as variables, order of operations, exponents and problem solving skills. They will gain a thorough introduction to functions, solving linear equations and inequalities, solving systems of equations and inequalities, operations on rational and irrational expressions and factoring polynomials. The main purpose of the course is to give students a thorough introduction to linear functions and quadratic equations. They will learn about the operations associated with the two, such as factoring and graphing.

Geometry   *1 credit*
In Geometry, students will develop reasoning and problem solving skills as they study topics such as congruence and similarity, inductive and deductive reasoning, as well as transformations and translations. They will further learn the properties of lines, triangles, quadrilaterals and circles. They will then apply these properties as they learn to develop various types of proofs. Students will also develop problem-solving skills by using length, perimeter, area, circumference, surface area and volume to solve real-world problems.

Geometry Honors   *1 credit*
In Geometry, students will develop reasoning and problem solving skills as they study topics such as congruence and similarity, inductive and deductive reasoning, as well as transformations and translations. They will further learn the properties of lines, triangles, quadrilaterals and circles. They will then apply these properties as they learn to develop various types of proofs. Students will also develop problem-solving skills by using length, perimeter, area, circumference, surface area and volume to solve real-world problems.

Algebra II   *1 credit*
Students will learn how to graph polynomial functions, as well as logarithmic and exponential functions. They will spend a large amount of time solving various types of equations which include linear, matrix, logarithmic, and exponential equations, as well as systems of equations.

Algebra II/Trigonometry Honors *1 credit*
Algebra II will assist students in developing skills and a range of techniques to successfully solve problems in a variety of settings. Some of the major topics that will be covered include: functions, linear systems, linear equations, quadratic equations, polynomials, conic sections, statistics and probability, and trigonometry. Students will learn how to graph polynomial functions, as well as logarithmic and exponential functions. They will spend large amount of time solving various types of equations which include linear, matrix, logarithmic, and exponential equations, as well as systems of equations. The last part of the school year will be spent learning about the trigonometric functions and how to manipulate equations with them. They will learn how to graph the six trig functions as well as the various laws associated with them.

Algebra III *1/2 credit elective*
Algebra III is a course that prepares students for pre-calculus and college level courses. The student will further develop his understanding of algebraic concepts and skills and use those skills in problem solving. The students will explore the use of coordinates and functions, data analysis, transformations, matrices, coordinate geometry, conic sections, systems of equations and inequalities, statistics, probability, direct and inverse variation, exponential functions, quadratic functions and complex numbers, polynomial and rational functions, sequences and series, ratios and linear programming. Real world problems to motivate and apply theory are integrated into all areas in an effort to illustrate meaningful application of Algebra. The student will make use of the graphing calculator throughout the course. It is expected that the student will become an effective communicator both in written and in oral form. As part of problem-solving, the student must be able to explain his process.

Trigonometry *1/2 elective credit*
Trigonometry is a course that prepares students for pre-calculus and college level courses. Students will study relations, functions, graphs, trigonometry, polar coordinates, and complex numbers. The student will analyze and graph mathematical functions. The student will make use of the graphing calculator throughout the course. It is expected that the student will become an effective communicator both in written and in oral form. As part of problem solving, the student must be able to explain his process.

Pre-Calculus Honors *1 credit*
This course is designed to prepare students for college level calculus. It covers the principle topics of inequalities, functions, coordinate geometry (conic sections), logarithms, and trigonometry. Special features include: critical thinking, collaborative learning, mathematical reasoning and data analysis. Students will learn what a limit of a function is and how to find the limit both numerically and graphically.

Probability/Statistics *1 elective credit*
Probability and Statistics is a course designed for the college bound student who has successfully completed Algebra II and wishes to continue to explore a large range of topics with an emphasis on "real world" applications such as games of chance, random population, and actuarial science. Students will regularly apply the tools of technology including the graphing calculator and computer to solve problems. They will be challenged through critical thinking

exercises and participate in various group and individual activities that will enhance their mathematical reasoning ability and communication skills. Students are expected to use the information and technology in various ways in real world applications. Students will also engage in Internet projects.

AP Calculus   *1 credit*
The primary goal of this course is to help students see and interpret the world using both differential and integral calculus. Students will study functions and their graphs, limits, and the definition of the derivative. They will also learn techniques of differentiation, as well as applications of the derivative. The concept of the integral will be introduced, as well as techniques of integration. Students will learn the fundamental theorem of calculus, and use this theorem, along with techniques of integration, to solve applications involving integration. These topics will be approached with a variety of methods, and problems will be solved in a variety of ways – graphically, numerically, analytically, and verbally.

AP Statistics   *1 credit*
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:
1. Exploring Data: Describing patterns and departures from patterns
2. Sampling and Experimentation: Planning and conducting a study
3. Anticipating Patterns: Exploring random phenomena using probability and simulation
4. Statistical Inference: Estimating population parameters and testing hypotheses