



# MATH

## Algebra I

The primary objective of this course is the understanding and application of fundamental algebraic concepts. Topics include linear equations and inequalities, linear functions, systems of linear equations, exponential and quadratic equations, and polynomial factoring. Students will be expected to describe and translate among graphical, algebraic, numeric, and verbal representations of relations and to use those representations to solve problems.

(1 Credit)

## Geometry

The primary objective of this course is the understanding and application of fundamental geometric concepts. Topics include inductive and deductive reasoning, coordinate geometry, polygon and circle properties, similarity, the Pythagorean Theorem, area, and volume. Students will be challenged to apply reasoning skills to draw mathematical conclusions in a logical and systematic manner. The development of visual thinking skills is another unifying component of this course.

(1 Credit)

Prerequisite: Algebra I

## Honors Geometry

The primary objective of this challenging course is to complete a study of fundamental geometric concepts and applications. Topics include inductive and deductive reasoning, classical construction, coordinate geometry, polygon and circle properties, area and volume, the Pythagorean Theorem, and similarity. A particular emphasis is placed on using deductive reasoning, with formal proofs studied throughout the course.

(1 Credit)

Prerequisite: Honors Algebra I and teacher recommendation

## **Algebra 2**

The purpose of this course is to complete further study of the abstract algebraic concepts introduced in Algebra I. Significant time is spent investigating the important implications of a function. Topics include linear and quadratic functions, polynomials, exponential and logarithmic functions, rational functions, conics, and basic trigonometry. Students will be expected to describe and translate among graphical, algebraic, numeric, and verbal representations to solve problems while mastering the fundamental concepts of algebra.

(1 Credit)

Prerequisite: Geometry

## **Honors Algebra 2**

The purpose of this advanced course is to complete a further study of the abstract algebraic concepts introduced in Honors Algebra I. Significant time is spent investigating the important implications of a function. Advanced topics include the complex number system, analytic geometry, exponential and logarithmic functions, and triangle trigonometry. Students will be expected to describe and translate among graphical, algebraic, numeric, and verbal representations to solve problems while mastering the fundamental concepts of algebra.

(1 Credit)

Prerequisite: Honors Geometry and teacher recommendation

## **Algebra 3/Trigonometry**

The purpose of this course is to prepare students for future success in college-level mathematics. This goal is accomplished through the further study of algebraic concepts and applications introduced in Algebra I and 2. Linear, polynomial, rational, logarithmic, and exponential functions are explored analytically as well as using a graphing utility. The course concludes with a broad overview of fundamental trigonometric concepts.

(1 Credit)

Prerequisite: Algebra 2

## **Pre-Calculus**

The primary objective of this course is to prepare students for success in college-level mathematics. This goal is accomplished through an intensive study of functions and their applications, beginning with a review of linear and quadratic functions before moving to more advanced topics. Polynomial, rational, logarithmic, exponential, and trigonometric functions are thoroughly explored analytically as well as using a graphing utility. The course concludes with a brief overview of fundamental calculus concepts.

(1 Credit)

Prerequisite: Algebra 3/Trigonometry or Algebra 2 with a grade of 87 or higher

## **Honors Pre-Calculus**

The primary objective of this course is preparation for success in college-level mathematics. This goal is accomplished through an intensive study of functions and their applications, beginning with a review of linear and quadratic functions before moving to more advanced topics. Polynomial, rational, logarithmic, exponential, and trigonometric functions are thoroughly explored analytically and by using a graphing calculator. Other topics that will be examined include systems of equations, sequences and series, analytical trigonometry, polar coordinates, and limits. The course concludes with a brief overview of fundamental calculus concepts.

(1 Credit)

Prerequisite: Honors Algebra 2 and teacher recommendation

## **Honors Calculus**

The primary objective of this course is to complete a study of fundamental calculus concepts and applications. Topics include functions, limits, differentiation, integration, and applications of derivatives and integrals. A multi-representational approach will be used throughout the course as topics will be presented verbally, graphically, numerically, and analytically. Students will be challenged to think critically by applying concepts to a wide range of problems.

(1 Credit)

Prerequisite: Pre-Calculus

## **AP Calculus AB**

This is an Advanced Placement course which, theoretically, is equivalent to one semester of college calculus. This course is designed to present all major concepts and applications of limits, derivatives, and integrals in a single variable form. Each of these calculus topics will be taught from a multi-representational approach. Topics will be presented graphically, numerically, analytically, and verbally. The student will be expected to work with each topic from all of these perspectives. There will also be a heavy emphasis on integrating technology into this subject. Students will be challenged to use higher order thinking skills in a wide range of problems by applying known concepts. Students enrolled in this course are required to take the AP Calculus AB exam.

(1 Credit)

Prerequisite: Honors Pre-Calculus, an approved PSAT score, and teacher recommendation

## **AP Calculus BC**

This course is designed to present all major concepts and applications of single variable calculus which includes limits, derivatives, integrals, and infinite series. Each of the topics will be taught from the multi-representational approach. Topics will be presented geometrically, numerically, analytically, and verbally. The student will be expected to work with each topic from all of these perspectives. A heavy emphasis on technology integration will be a part of this course. Students enrolled in this course are required to take the AP Calculus BC exam and must be concurrently enrolled in BC Lab during a Free Period.

(1 Credit, Lab earns .5 credit)

Prerequisite: Honors Pre-Calculus, an approved PSAT score, and teacher recommendation

## **Statistics**

The purpose of this course is to give students a general understanding of statistical topics. Topics include surveys, experimental design, distributions, probability, and inference. Students will need a graphing calculator for the course and will use technology to produce statistical reports.

(1 Credit)

Prerequisite: Pre-Calculus or Algebra 3/Trigonometry with a grade of 87 or higher

## **AP Statistics**

The purpose of this Advanced Placement course is to complete an introductory study of fundamental statistical concepts. Topics include data production, data analysis, probability and simulation, and statistical inference. The use of technology to facilitate inquiry and the importance of written communication to convey understanding are emphasized throughout. Students are required to take the AP Statistics exam at the conclusion of this course.

(1 Credit)

Prerequisite: Pre-Calculus with a grade of B+ or higher, an approved PSAT score, and teacher recommendation OR Honors Geometry with a grade of A and teacher recommendation