

UPPER SCHOOL COURSES

Mathematics Department

Algebra I (1.0 Credits)

This course is a course in fundamental algebraic concepts. Primary emphasis is placed on working with real numbers, solving and graphing linear open sentences, simplifying rational expressions, and solving quadratic equations. Application and problem solving skills will be integrated into all topics.

Prerequisite: Pre Algebra

Textbook: Algebra I Common Core (Pearson), 9780133185485

Special Conditions: This course is usually taught in the 8th grade as a requirement; however, it is considered an US course (Semester Exam = 20% of Semester Grade) and counts toward the student's Cumulative GPA.

Algebra I Honors (1.0 Credits)

This is a more intense study of Algebra I. Irrational numbers are introduced and more challenging problems are assigned. This class moves at a much faster pace. Teacher recommendation required.

Prerequisite: B test average in Pre-Algebra, Aspire score 422 or higher, and present teacher's approval.

Textbook: Algebra I Common Core (Pearson), 9780133185485

Special Conditions: This course is usually taught in the 8th grade as a requirement; however, it is considered an US course (Semester Exam = 20% of Semester Grade) and counts toward the student's Cumulative GPA.

Geometry (1.0 Credits)

The basis of this course is traditional Euclidean geometry with emphasis on logical thinking, proof writing, and algebraic applications. Areas of study include angles, parallel lines, congruent and similar triangles, polygons, circles, and the Pythagorean Theorem. Plane coordinate geometry and an introduction to right triangle trigonometry is also included.

Prerequisite: Algebra I

Textbook: Geometry Common Core (Pearson), 9780133185829

Geometry Honors (1.0 Credits)

Prerequisite: AL I – This honors class offers a more intense study of the traditional Euclidean geometry with emphasis on analytical thinking, proof writing, and algebraic applications. Areas of study include angles, parallel lines, congruent and similar triangles, polygons, circles, and the Pythagorean Theorem. Plane coordinate geometry, transformations, and an introduction to right triangle trigonometry is also included.

Prerequisite: B test average in Algebra I Honors and present teacher's approval.

Textbook: Geometry Common Core (Pearson), 9780133185829

Algebra II (1.0 Credits)

This course is a continuation of subject matter introduced in Algebra I. It covers standard Algebra II topics such as the quadratic formula, completing the square, irrational and complex numbers, matrices, and determinants. Emphasis is on the application of algebraic concepts and deductive reasoning to problems of increasing difficulty.

Prerequisite: Algebra I

Textbook: Algebra II Common Core (Pearson), 9780133186024

Algebra II Honors (1.0 Credits)

As a more in-depth and intense study of Algebra II, this course includes polynomial functions, quadratic relations and systems, exponents, and logarithms. Problem solving is emphasized. Teacher recommendation required.

Prerequisite: B test average in Geometry Honors and present teacher's approval.

Textbook: Algebra II, Pearson, 9780133186024

Advanced Algebra and Trigonometry (1.0 Credits)

This course is designed to deepen students' understanding of many of the topics learned in Algebra II and increase knowledge of trigonometry. This course includes linear systems, exponential and logarithmic functions, trigonometric functions and trigonometric identities. This course is designed to prepare students for successful work in Pre-calculus or AP Statistics.

Prerequisite: Algebra II

Textbook: Algebra II Common Core (Pearson), 9780133186024

Pre-Calculus (1.0 Credits)

This course provides a thorough preparation for the study of calculus, discrete mathematics, and other related courses. Traditional topics from college algebra, trigonometry and analysis are included. Theory is emphasized.

Prerequisite: Algebra II

Textbook: A Graphical Approach to PreCalculus with Limits 6th Edition, 9780321900821

Honors Pre-Calculus (1.0 Credits)

This course provides a thorough preparation for the study of calculus, discrete mathematics, and other related courses. Traditional topics from college algebra, trigonometry and analysis are included. Theory is emphasized. This course is designed to prepare students for successful work in college mathematics.

Prerequisite: B test average in Algebra II Honors and present teacher's approval.

Textbook: A Graphical Approach to PreCalculus with Limits 6th Edition, 9780321900821

Calculus (1.0 Credits)

Topics include the limit of a function; the derivative of algebraic, trigonometric, exponential, and logarithmic functions; and the definite integral. Applications of the derivative are covered in detail, including approximations of error using differentials, maxima and minima problems, and curve sketching using calculus. There is also a brief review of selected pre-calculus topics at the beginning of the course.

Prerequisite: Honors PreCalculus or PreCalculus

Textbook: Calculus, 6th Edition, 9780395885772

Advanced Placement (AP) Calculus AB (1.0 Credits)

This course covers the topics listed in the Calculus AB syllabus by the Advanced Placement Program of the College Board. Topics include limits along with calculation and applications of derivatives and integrals. The Advanced Placement exam is required in the spring.

Prerequisite: B test average in Honors Pre-Calculus, ACT score 25 or higher, and present teacher's approval.

Textbook: Calculus for the AP Course (Sullivan and Miranda), 3rd Edition, 9781319244316

Advanced Placement (AP) Calculus BC (1.0 Credits)

This course covers the topics listed in the Calculus BC syllabus by the Advanced Placement Program of the College Board. Topics include limits along with calculation and applications of derivatives and integrals, sequences, series, parametric equations, and vectors. The Advanced Placement exam is required in the spring.

Prerequisite: A test average in Honors Pre-Calculus, ACT score 25 or higher, and present teacher's approval.

Textbook: Calculus for the AP Course (Sullivan and Miranda), 3rd Edition, 9781319244316

Advanced Placement (AP) Statistics (1.0 Credits)

The AP Statistics course is equivalent to an introductory, non-calculus-based college course in statistics. The course introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. There are four themes in the AP Statistics course: exploring data, sampling and experimentation, anticipating patterns, and statistical inference. Students use technology, investigations, problem solving, and writing as they build conceptual understanding.

Prerequisite: B test average in Algebra II or B test average in Advanced Algebra and Trigonometry and present teacher's approval.

Textbook: The Practice of Statistics, 9781464108730