

Mathematics

Course Title	Course #	Term	Grade(s)	Prerequisite(s)	Major Topics
GSE Algebra I	27.0990000	Y	9	None	Students will formalize and extend the mathematics that they learned in the middle grades; 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; use algebra to deepen and extend understanding of geometric knowledge from prior grades; and tie together the algebraic and geometric ideas studied.
GSE Accelerated Algebra/Geometry A	27.0994040	Y	9	Teacher Recommendation	Formalize and extend the mathematics that students learned in the middle grades; 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; use algebra to deepen and extend understanding of geometric knowledge from prior grades; tie together the algebraic and geometric ideas studied.
GSE Geometry	27.0991000	Y	10	GSE Algebra I	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. The link between probability and data is explored through conditional probability.
GSE Accelerated Geometry B/Algebra II	27.0995040	Y	10	Teacher Recommendation	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. The link between probability and data is explored through conditional probability. Methods from probability and statistics are used 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. Students bring together all of their experience with functions and geometry to create models and solve contextual problems.
GSE Algebra 2	27.0992000	Y	11	GSE Geometry	Students will pull together and apply the accumulation of learning from their previous mathematics courses. Methods from probability and statistics will be used to draw inferences and conclusions from data. Students will expand their repertoire of functions to include polynomial, rational, and radical functions. The study of right triangle trigonometry will be expanded and then used to model periodic phenomena. Experiences with functions and geometry will help students to create models and solve contextual problems.

GSE Accelerated Pre-calculus Honors	27.0977040	Y	11	Teacher Recommendation	This course is intended to prepare students for a more intense study of mathematics. 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 organization structure in which to represent and solve complex problems. The concept of complex numbers is extended, and the coordinate plane is used to represent and operate upon vectors. Probability rounds out the course using counting methods.
GSE Pre-calculus	27.0974000	Y	12	GSE Algebra II	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.
GSE Calculus	27.0710000	Y	12	GSE Algebra II	Real numbers and the Cartesian plane; review of functions, limits and their properties; derivatives, differentiation, and application; anti-derivatives and indefinite integration; area and definite integrals; integration by substitution; the Trapezoidal rule; logarithmic, exponential and other transcendental functions; and applications and methods of Integration.
Advanced Mathematical Decision Making	27.0850000	Y	12	None	More in-depth study of statistical information, summaries, and methods of designing and conducting statistical studies; voting processes, modeling of data, and basic financial decisions; use of network models for making informed decisions.
AP Calculus AB	27.0720000	Y	11-12	Teacher Recommendation	Real numbers and the Cartesian plane; review of functions, limits and their properties; derivatives, differentiation, and application; anti-derivatives and indefinite integration; area and definite integrals; integration by substitution; the Trapezoidal rule; logarithmic, exponential and other transcendental functions; and applications and methods of Integration.
AP Calculus BC	27.0730000	Y	11-12	Teacher Recommendation	Review of functions, limits, and their properties; differentiation and integration; applications of differentiation; logarithmic, exponential, and other transcendental functions; applications of integration and integration techniques; improper integrals; and L'Hôpital's Rule
AP Statistics	27.0740000	Y	11-12	Teacher Recommendation	Introduction to statistics, descriptive statistics, probability; probability distributions and normal probability distributions; estimates and sample size; hypothesis testing; inferences from two samples; correlation and regression; multinomial experiments; analysis of variance; statistical process control; nonparametric statistics; and design and sampling.