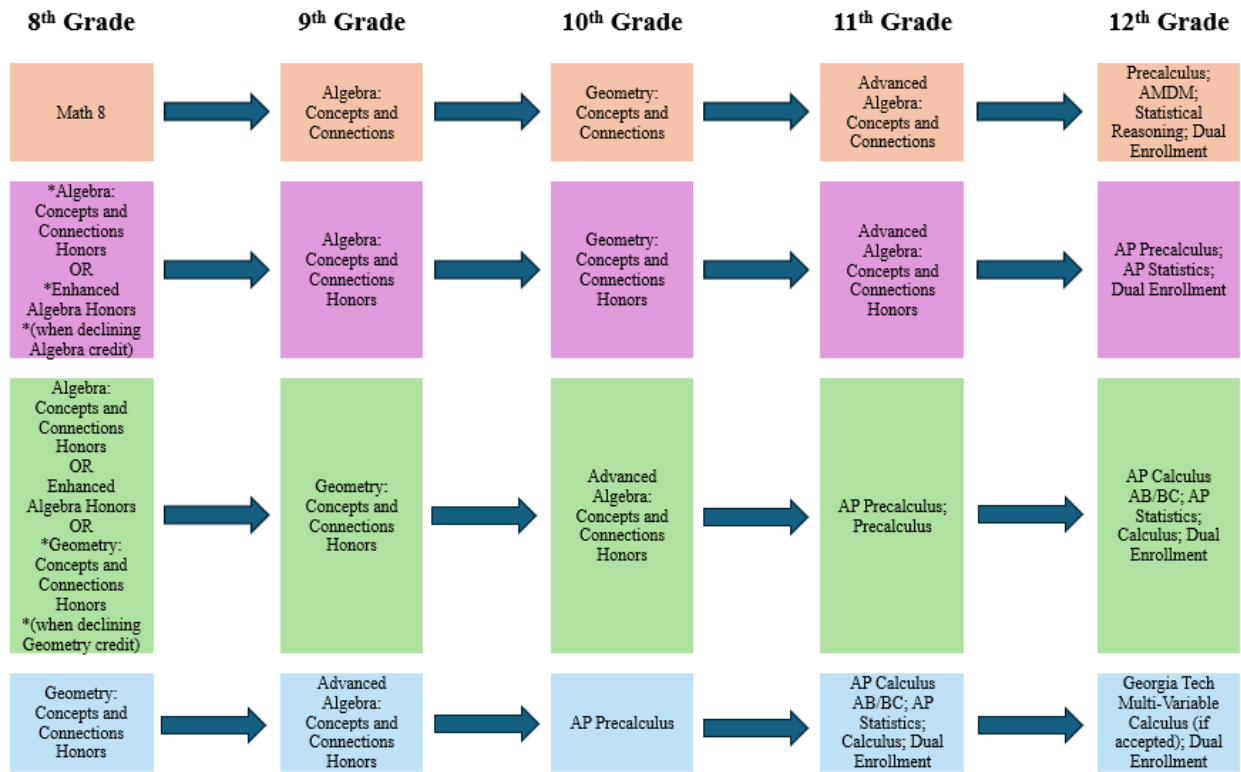


Math

Graduation Requirement: 4 Credits



Course	Course Number	Term	Grade (s)	Prerequisite(s)	Curriculum
Co-requisite Algebra I Support	27.0812001 fall	Y	9	Math 8	This course is an elective that is a companion class to Algebra: Concepts and Connections for students who need additional mathematics support. This class will give the student extra time and practice on a daily basis.
	27.0812002 spring				
Algebra: Concepts and Connections	27.0811001 fall	Y	9	Math 8	The first course in a sequence of three high school courses designed to ensure career and college readiness. Students will apply their algebraic and geometric reasoning skills to make sense of problems involving algebra, geometry, bivariate data, and statistics. This course focuses on algebraic, quantitative, geometric, graphical, and statistical reasoning. In this course, students will continue to enhance their linear functions, sums and products or rational and irrational numbers, systems of linear inequalities, distance, midpoint, slope, area perimeter, nonlinear equations and functions, quadratic expressions, equations and functions, exponential expressions, equations, and functions, and statistical reasoning.
	27.0811002 spring				

Course	Course Number	Term	Grade (s)	Prerequisite (s)	Curriculum
Algebra: Concepts and Connections Honors	27.0811041 fall 27.0811042 spring	Y	9	Algebra: C&C Honors OR Enhanced Algebra Honors	Same course description as Algebra: Concepts and Connections plus: Students in honors mathematics courses will have different workload experiences, including a focus on rich performance-based tasks and problem-based lessons. Core content may be taught a faster pace to allow time for more in-depth exploration through real-world application. Assessments will gauge student's procedural and conceptual understanding of the content.
Geometry: Concepts and Connections	27.0821001 fall 27.0821002 spring	Y	10	Algebra: Concepts and Connections	This is the second course in a sequence of three high school courses designed to ensure career and college readiness. This course is intended to enhance students' geometric, algebraic, graphical, and probabilistic reasoning skills. Students will apply their algebraic and geometric reasoning skills to make sense of problems involving geometry, trigonometry, algebra, probability, and statistics. Students will continue to enhance their analytical geometry and reasoning skills when analyzing and applying a deep understanding of polynomial expressions, proofs, constructions, rigid motions and transformations, similarity, congruence, circles, right triangle, trigonometry, geometric measurement, and conditional probability.
Geometry: Concepts and Connections Honors	27.0821041 fall 27.0821042 spring	Y	9-10	Algebra: Concepts and Connections Honors OR Enhanced Algebra Honors	Same course description as Geometry: Concepts and Connections plus: Students in honors mathematics courses will have different workload experiences, including a focus on rich performance-based tasks and problem-based lessons. Core content may be taught a faster pace to allow time for more in-depth exploration through real-world application. Assessments will gauge student's procedural and conceptual understanding of the content.
Advanced Algebra: Concepts and Connections	27.0831001 fall 27.0831002 spring	Y	11	Geometry: Concepts and Connections	This is the third course in a sequence of courses designed to ensure career and college readiness. Students will continue to enhance their data and statistical reasoning skills as they learn specific ways to collect, critique, analyze, and interpret data. Students will learn how to use matrices and linear programming to represent data and to solve contextually relevant problems. Students will strengthen their geometric and spatial reasoning skills as they learn how to solve trigonometric equations using the unit circle. In previous courses, students studied how to use linear and quadratic functions to model real-life phenomena. Students will further develop their functional and graphical reasoning as they explore and analyze structures and patterns.

Course	Course Number	Term	Grade (s)	Prerequisite (s)	Curriculum
Advanced Algebra: Concepts and Connections Honors	27.0831041 fall	Y	9-11	Geometry: Concepts and Connections Honors	Same course description as Advanced Algebra: Concepts and Connections plus: Students in honors mathematics courses will have different workload experiences, including a focus on rich performance-based tasks and problem-based lessons. Core content may be taught a faster pace to allow time for more in-depth exploration through real-world application. Assessments will gauge student's procedural and conceptual understanding of the content.
	27.0831042 spring				
Pre-Calculus	27.0841001 fall	Y	11-12	Advanced Algebra: Concepts and Connections or Advanced Algebra: Concepts and Connections Honors	This course provides students with the opportunity to develop a deeper understanding of concepts in Algebra that are critical to the study of Calculus as well as an understanding of trigonometry and its applications. Throughout the course there will be a focus on notational fluency and the use of multiple representations. The course includes the study and analysis of piecewise and rational functions; limits and continuity as related to piecewise and rational functions; sequences and series with the incorporation of convergence and divergence; conic sections as implicitly defined curves; the six trigonometric functions and their inverses; applications of trigonometry such as modeling periodic phenomena, modeling with vectors and parametric equations, solving oblique triangles in contextual situations, graphing in the Polar Plane; solutions of trigonometric equations in a variety of contexts; and the manipulation and application of trigonometric identities. Seniors may enroll in PreCalculus concurrently with AP Statistics.
	27.0841002 spring				
Advanced Mathematical Decision Making	27.0850001 fall	Y	12	Advanced Algebra: Concepts and Connections	This course is designed to give students further experiences with statistical information and summaries, methods of designing and conducting statistical studies, an opportunity to analyze various voting processes, modeling of data, basic financial decisions, and use network models for making informed decisions.
	27.0850002 spring				
Statistical Reasoning	27.0880001 fall	Y	12	Advanced Algebra: Concepts and Connections	Statistical Reasoning offers students opportunities to strengthen their understanding of the statistical method of inquiry and statistical simulations. Students will formulate statistical investigative 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.
	27.0880002 spring				

Course	Course Number	Term	Grade (s)	Prerequisite(s)	Curriculum
Calculus	27.0780001 fall	Y	12	Precalculus or AP Precalculus	<p>The course provides students with the opportunity to develop an understanding of the derivative and its applications as well as the integral and its applications. Throughout the course there will be a focus on notational fluency and the use of multiple representations. The course includes the study and analysis of limits and continuity as applied to a variety of functions; the derivative as related to limits and continuity; various derivative rules such as product, quotient, and chain; applications of the derivative including curve analysis, applied max/min situations, related rate problems, and use of Mean Value Theorem; the definite integral as a limit of Riemann sums; properties of definite integrals; the Fundamental Theorem of Calculus as it relates derivatives and integrals; techniques of integration including u - substitution; and applications of the integral including solving separable differential equations, finding a particular solution curve given an initial condition, area between curves on a coordinate plane, and average value situations.</p>
	27.0780002 spring				
AP Precalculus	27.0741001 fall	Y	10-12	Advanced Algebra: Concepts and Connections Honors	<p>The course centers on functions modeling dynamic phenomena. Students also learn that functions and their compositions, inverses, and transformations are understood through graphical, numerical, analytical, and verbal representations, which reveal different attributes of the functions and are useful for solving problems in mathematical and applied contexts. In turn, the skills learned in this course are widely applicable to situations that involve quantitative reasoning. Students learn that a function is a mathematical relation that maps a set of input values—the domain—to a set of output values—the range—such that each input value is uniquely mapped to an output value. Students understand functions and their graphs as embodying dynamic covariation of quantities, a key idea in preparing for calculus. With each function type, students develop and validate function models based on the characteristics of a bivariate data set, characteristics of covarying quantities and their relative rates of change, or a set of characteristics such as zeros, asymptotes, and extrema. This type of understanding helps students to engage with both familiar and novel contexts. See Precalculus course description above for additional topics. Seniors may NOT enroll in AP Precalculus as their only senior-level mathematics course after completing non-Honors Advanced Algebra: Concepts and Connections.</p>
	27.0741002 spring				

Course	Course Number	Term	Grade (s)	Prerequisite (s)	Curriculum
AP Calculus AB	27.0720001 fall	Y	11-12	AP Precalculus	Topics in AP Calculus AB include limits and their properties; derivatives and differentiation applications; anti-derivatives and indefinite integration; area and definite integrals; integration by substitution; the trapezoidal rule; logarithmic, exponential, and other transcendental functions; applications and methods of integration; miscellaneous topics in Calculus AB. This course is equivalent to a college-level Calculus I course.
	27.0720002 spring				
AP Calculus BC	27.0730001 fall	Y	11-12	AP Precalculus	Topics in AP Calculus BC include all topics from AP Calculus AB as well as applications of integration involving work and arc length; parametric equations; analysis of acceleration and velocity vectors; applications of slope fields to differential equations; analysis of geometric, harmonic, p-, and alternating series; and approximations of polynomials with Taylor and Maclaurin series. This course is equivalent to college-level Calculus I and Calculus II courses.
	27.0730002 spring				
AP Statistics	27.0740001 fall	Y	11-12	Advanced Algebra: Concepts and Connections	Topics in AP Statistics include introduction to statistics; descriptive statistics; probability; probability distributions; normal probability distributions; estimates and sample size; hypotheses testing; inferences from two samples; correlation and regression; multinomial experiments; analysis of variance; statistical process control; nonparametric statistics; design and sampling. Students are required to do a fair amount of reading and are expected to use the textbook as a primary source of information. Likewise, there is a major emphasis on writing rather than algebraic manipulation. This course is equivalent to introductory college-level Statistics. Seniors may NOT enroll in AP Statistics as their only senior-level mathematics course after completing non-Honors Advanced Algebra: Concepts and Connections.
	27.0740002 spring				
AP Computer Science A	11.0160001 fall	Y	11-12	Advanced Algebra: Concepts and Connections Honors	Major themes include critical thinking and problem solving in computer programming. Students design, implement, and analyze solutions as well as write, run, test, and debug solutions in the Java programming language.
	11.0160002 spring				