

# MATHEMATICS OFFERINGS 2024-2025

Course Description	Prerequisites	Grade	Units
<p><b>Foundations of Algebra</b> will provide many opportunities to revisit and expand the understanding of foundational algebra concepts, will employ diagnostic means to offer focused interventions, and will incorporate varied instructional strategies to prepare students for required high school courses. The course will emphasize both algebra and numeracy in a variety of contexts including number sense, proportional reasoning, quantitative reasoning with functions, and solving equations and inequalities. This is a core mathematics course and does fulfill a mathematics requirement for graduation.</p>	Teacher Recommendation Only	9	1/2 unit
<p><b>Algebra</b> is 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 algebraic reasoning skills when analyzing and applying a deep understanding of linear functions, sums and products of 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. High school course content standards are listed by big ideas including Data and Statistical Reasoning, Probabilistic Reasoning, Functional and Graphical Reasoning, Patterning and Algebraic Reasoning, and Geometric and Spatial Reasoning.</p>	None	9	1/2 unit per semester
<p><b>Honors Algebra</b> is 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 algebraic reasoning skills when analyzing and applying a deep understanding of linear functions, sums and products of 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. High school course content standards are listed by big ideas including Data and Statistical Reasoning, Probabilistic Reasoning, Functional and Graphical Reasoning, Patterning and Algebraic Reasoning, and Geometric and Spatial Reasoning.</p>	Teacher Recommendation Only	8-9	1/2 unit per semester
<p><b>Geometry</b> 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</p>	GSE Algebra I	9-10	1/2 unit per semester

<p>understanding of polynomial expressions, proofs, constructions, rigid motions and transformations, similarity, congruence, circles, right triangle trigonometry, geometric measurement, and conditional probability. High school course content standards are listed by big ideas including Data and Statistical Reasoning, Probabilistic Reasoning, Functional and Graphical Reasoning, Patterning and Algebraic Reasoning, and Geometric and Spatial Reasoning.</p>			
<p><b>Honors Geometry</b> 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. High school course content standards are listed by big ideas including Data and Statistical Reasoning, Probabilistic Reasoning, Functional and Graphical Reasoning, Patterning and Algebraic Reasoning, and Geometric and Spatial Reasoning.</p>	<p>GSE Honors Algebra I <i>or</i> GSE Algebra I (taken in middle school) <i>or</i> Teacher Recommendation</p>	<p>9-10</p>	<p>1/2 unit per semester</p>
<p><b>Advanced Algebra</b> is the third course in a sequence of courses designed to ensure career and college readiness. It is intended to prepare students for fourth mathematics course options relevant to their postsecondary pursuits. High school course content standards are listed by big idea, including Data and Statistical Reasoning, Probabilistic Reasoning, Functional and Graphical Reasoning, Patterning and Algebraic Reasoning, and Geometric and Spatial Reasoning. In Advanced Algebra, 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. In Advanced Algebra, students will further develop their functional and graphical reasoning as they explore and analyze structures and patterns for exponential, logarithmic, radical, polynomial, and rational expressions, equations and functions to further understand the world around them.</p>	<p>GSE Geometry</p>	<p>10-11</p>	<p>1/2 unit per semester</p>
<p><b>Honors Advanced Algebra</b> is the third course in a sequence of courses designed to ensure career and college readiness. It is intended to prepare students for fourth mathematics course options relevant to their postsecondary pursuits. High school course content standards are listed by big idea, including Data and Statistical Reasoning, Probabilistic Reasoning, Functional and Graphical Reasoning, Patterning and Algebraic Reasoning, and Geometric and Spatial Reasoning. In Advanced Algebra, 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</p>	<p>GSE Honors Geometry <i>or</i> Teacher Recommendation</p>	<p>9-11</p>	<p>1/2 unit per semester</p>

<p>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. In Advanced Algebra, students will further develop their functional and graphical reasoning as they explore and analyze structures and patterns for exponential, logarithmic, radical, polynomial, and rational expressions, equations and functions to further understand the world around them.</p>			
<p><b>Precalculus</b> is a fourth-year mathematics course option for students who have completed Advanced Algebra. The course is intended to provide students with opportunities to develop a deeper understanding of Algebraic concepts that are critical to the study of Calculus. Students will also deepen their understanding of trigonometry and its applications. Throughout the Precalculus course there should 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. Topics should be analyzed in multiple ways, including verbal and written, numerical, algebraic, and graphical presentations. Instruction and assessment should include the appropriate use of technology. Concepts should be introduced and investigated, where appropriate, in the context of realistic phenomena.</p>	<p>GSE Advanced Algebra</p>	<p>12</p>	<p>1/2 unit per semester</p>
<p><b>AP Precalculus AB</b> – Follows the College Board syllabus for the Advanced Placement Precalculus Examination. Curriculum includes polynomial, rational, exponential, logarithmic, trigonometric and polar functions. Course also covers functions involving parameters, vectors and matrices. Students who take this course are on track to take AP Calculus AB.</p>	<p>Accelerated Geometry B/Advanced Algebra <i>or</i> Honors Advanced Algebra</p>	<p>10-12</p>	<p>1/2 unit per semester</p>
<p><b>AP Precalculus BC</b> – Follows the College Board syllabus for the Advanced Placement Precalculus Examination. Curriculum includes polynomial, rational, exponential, logarithmic, trigonometric and polar functions. Course also covers functions involving parameters, vectors and matrices. Students who take this course are on track to take AP Calculus BC.</p>	<p>Accelerated Geometry B/Advanced Algebra <i>or</i> Honors Advanced Algebra</p>	<p>10-11</p>	<p>1/2 unit per semester</p>

<p><b>Advanced Mathematical Decision Making</b> is a fourth-year mathematics course option designed to follow the completion of Advanced Algebra. Students will enhance their understanding of concepts explored in the context of real-life phenomena. The intent of this course is for students to combine their understanding of multiple mathematical concepts as they explore and solve real-world mathematical problems. Students will investigate applications of mathematics in a variety of contexts, including business and financial decision-making, earning, investing, spending, and borrowing money, using functions to model problem situations in both discrete and continuous relationships, and using ratios, rates, and percentages to solve problems, Instruction and assessment should include the appropriate use of manipulatives and technology. Topics should be represented in multiple ways, such as concrete/pictorial, verbal/written, numeric/data-based, graphical, and symbolic. Concepts should be introduced and applied, where appropriate, in the context of realistic phenomena.</p>	GSE Advanced Algebra	12	1/2 unit per semester
<p><b>Advanced Placement Statistics</b> - Follows the College Board syllabus for the Advanced Placement Statistics Examination. Covers four major themes: exploratory analysis, planning a study, probability, and statistical inference.</p>	GSE Advanced Algebra	10-12	1/2 unit per semester
<p><b>Advanced Placement Calculus AB</b> - Follows the College Board syllabus for the Advanced Placement Calculus AB Examination. Includes properties of functions and graphs, limits and continuity, differential and integral calculus.</p>	AP Precalculus AB	11-12	1/2 unit per semester
<p><b>Advanced Placement Calculus BC</b> - Conforms to College Board topics for the Advanced Placement Calculus BC Examination. Covers Advanced Placement Calculus AB topics and includes vector functions, parametric equations, conversions, parametrically defined curves, tangent lines, and sequence and series.</p>	AP Precalculus BC or Teacher Recommendation	11-12	1/2 unit per semester
<p><b>Georgia Tech Linear Algebra and Multivariable Calculus</b> - For students who have successfully completed AP Calculus BC and met Georgia Tech's criteria for admission. Classes are facilitated by Lassiter and taught by Georgia Tech faculty and staff.</p>	AP Calculus BC and acceptance by the Georgia Institute of Technology	12	1 unit per semester
<p><b>Multivariable Calculus</b> – Multivariable Calculus is a fourth-year mathematics course option for students who have completed AP Calculus BC. It includes three-dimensional coordinate geometry; matrices and determinants; eigenvalues and eigenvectors of matrices; limits and continuity of functions with two independent variables; partial differentiation; multiple integration; the gradient; the divergence; the curl; Theorems of Green, Stokes, and Gauss; line integrals; integrals independent of path; and linear first-order differential equations.</p>	AP Calculus BC	12	1/2 unit per semester