

# MATHEMATICS OFFERINGS 2022-2023

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>GSE Algebra I</b> - The fundamental purpose of Algebra I is to formalize and extend the mathematics that students learned in the middle grades. The critical areas, organized into units, deepen and extend understanding of functions by comparing and contrasting linear, quadratic, and exponential phenomena. It includes polynomial and rational expressions, basic functions and their graphs, simple equations, quadratic, linear and exponential functions, and statistics. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.</p>	None	9	1/2 unit per semester
<p><b>GSE Geometry</b> - The focus of Geometry is organized into 6 critical areas. 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 from Algebra I. Circles return with their quadratic algebraic representations on the coordinate plane. The link between probability and data is explored through conditional probability. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.</p>	GSE Algebra I	9-10	1/2 unit per semester
<p><b>GSE Honors Geometry</b> - The focus of Honors Geometry is organized into 6 critical areas. 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</p>	GSE Accelerated Algebra 1/ Geometry A <i>or</i> GSE Algebra I (taken in middle school) <i>or</i>	9-10	1/2 unit per semester

<p>behavior to those of linear and exponential relationships from Algebra I. Circles return with their quadratic algebraic representations on the coordinate plane. The link between probability and data is explored through conditional probability. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.</p>	<p>Teacher Recommendation</p>		
<p><b>GSE Accelerated Algebra I/Geometry A</b> - The fundamental purpose of Accelerated Algebra I/Geometry A is to formalize and extend the mathematics that students learned in the middle grades. The critical areas, organized into units, deepen and extend understanding of functions by comparing and contrasting linear, quadratic, and exponential phenomena. It includes polynomial and rational expressions, basic functions and their graphs, simple equations, quadratic, linear and exponential functions, and statistics. Furthermore, it includes the geometric topics: fundamentals of proof, properties of polygons, right triangles, and right triangle trigonometry. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.</p>	<p>Teacher Recommendation Only</p>	<p>8-9</p>	<p>1/2 unit per semester</p>
<p><b>GSE Accelerated Geometry B/Algebra II</b> - The focus of Accelerated Geometry B/Algebra II is organized into nine critical areas, organized into units. Quadratic expressions, equations, and functions are developed; comparing their characteristics and behavior to those of linear and exponential relationships from Accelerated Algebra I/Geometry A. Circles return with their quadratic algebraic representations on the coordinate plane. The link between probability and data is explored through conditional probability. Students expand their repertoire of functions to include quadratic (with complex solutions), polynomial, rational, and radical functions. And, finally, students bring together all of their experience with functions to create models and solve contextual problems. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.</p>	<p>GSE Accelerated Algebra I/Geometry A</p>	<p>9-10</p>	<p>1/2 unit per semester</p>
<p><b>GSE Algebra II</b> - It is in Algebra II that students pull together and apply the accumulation of learning that they have from their previous courses, with content grouped into six critical areas, organized into units. They apply methods from probability and statistics 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. And, finally, students bring together all of their experience with functions and geometry to create models and solve contextual problems. The Mathematical Practice Standards apply throughout each course and, together with the</p>	<p>GSE Geometry</p>	<p>10-11</p>	<p>1/2 unit per semester</p>

<p>content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.</p>			
<p><b>GSE Honors Algebra II</b> - It is in Algebra II that students pull together and apply the accumulation of learning that they have from their previous courses, with content grouped into six critical areas, organized into units. They apply methods from probability and statistics 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. And, finally, students bring together all of their experience with functions and geometry to create models and solve contextual problems. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.</p>	<p>GSE Honors Geometry <i>or</i> Teacher Recommendation</p>	<p>10-11</p>	<p>1/2 unit per semester 1/2 unit per semester</p>
<p><b>GSE Pre-Calculus</b> - Pre-Calculus focuses on standards to prepare students for a more intense study of mathematics. The critical areas organized in seven units delve deeper into content from previous courses. 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. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.</p>	<p>GSE Algebra II</p>	<p>11-12</p>	<p>1/2 unit per semester</p>
<p><b>GSE Accelerated Pre-Calculus</b> - Pre-Calculus focuses on standards to prepare students for a more intense study of mathematics. The critical areas organized in seven units delve deeper into content from previous courses. 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. The Mathematical Practice Standards apply throughout each course and, together with the content standards, prescribe that students experience mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations.</p>	<p>Accelerated Geometry B/Algebra II <i>or</i> Honors Algebra II</p>	<p>10-11</p>	<p>1/2 unit per semester</p>
<p><b>Advanced Mathematical Decision Making</b> - This is a course designed to follow the completion of Algebra II. The course will give students further experiences with statistical information and summaries, methods of designing and conducting statistical studies, an opportunity to analyze various voting</p>	<p>GSE Algebra II</p>	<p>12</p>	<p>1/2 unit per semester</p>

processes, modeling of data, basic financial decisions, and use network models for making informed decisions.			
<b>College Readiness Mathematics</b> - College Readiness Mathematics is a fourth course option for students who have completed GSE Algebra I, GSE Geometry, and GSE Algebra II, but are still struggling with high school mathematics standards essential for success in first year post-secondary mathematics courses required for non-STEM majors. The course is designed to serve as a bridge for high school students who will enroll in non-STEM post-secondary study and will serve to meet the high school fourth course graduation requirement. The course has been approved by the University System of Georgia as a fourth mathematics course beyond GSE Algebra II for non-STEM majors, so the course will meet the needs of collegebound seniors who will not pursue STEM fields.	GSE Algebra II	12	1/2 unit per semester
<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.	GSE Algebra II	10-12	1/2 unit per semester
<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.	GSE PreCalculus <i>or</i> GSE Accelerated PreCalculus	11-12	1/2 unit per semester
<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.	GSE Accelerated PreCalculus	11-12	1/2 unit per semester
<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.	AP Calculus BC and acceptance by the Georgia Institute of Technology	12	1/2 unit per semester
<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.	AP Calculus BC	12	1/2 unit per semester