



**Georgia's K-12
Mathematics Standards
Curriculum Map**

2026 – 2027

AP PRECALCULUS:
AP Central College Board

FCS AP PRECALCULUS CURRICULUM MAP

AP Precalculus				
Semester 1		Semester 2		
<i>FCS: Unit 1</i> <i>College Board: Unit 1</i>	<i>FCS: Unit 2</i> <i>College Board: Unit 3</i>	<i>FCS: Unit 3</i> <i>College Board: Unit 4</i>	<i>FCS: Unit 4</i> <i>College Board: Unit 2</i>	<i>FCS: Unit 5</i>
Polynomial and Rational Functions	Trigonometric and Polar Functions	Functions Involving Parameters, Vectors and Matrices	Exponential and Logarithmic Functions	Culminating Capstone Unit
42 Days <u>Unit Dates</u> 8/5/2026 – 10/9/2026	41 Days <u>Unit Dates</u> 10/13/2026 – 12/16/2026	28 Days <u>Unit Dates</u> 1/5/2027 – 2/12/2027	29 Days <u>Unit Dates</u> 2/22/2027 – 4/2/2027	30 Days <u>Unit Dates</u> 4/12/2027 – 5/21/2027
AP Learning Objectives AP.1.1 AP.1.2 AP.1.3 AP.1.4 AP.1.5 AP.1.6 PC.FGR.2.1 PC.FGR.2.3 PC.FGR.2.9 AP.1.7 AP.1.8 AP.1.9 AP.1.10 AP.1.11 AP.1.12 AP.1.13 AP.1.14	AP Learning Objectives AP.3.1 AP.3.2 AP.3.3 AP.3.4 AP.3.5 AP.3.6 AP.3.7 AP.3.8 AP.3.9 AP.3.10 AP.3.11 AP.3.12 PC.AGR.4.3 AP.3.13 AP.3.14 AP.3.15 PC.GSR.5.4 PC.GSR.5.5	AP Learning Objectives AP.4.1 AP.4.2 AP.4.3 AP.4.4 AP.4.5 PC.AGR.6.5 PC.AGR.6.6 AP.4.6 AP.4.7 AP.4.8 AP.4.9 AP.4.10 AP.4.11 AP.4.12 AP.4.13 AP.4.14	AP Learning Objectives AP.2.1 AP.2.2 PC.PAR.7.3 PC.PAR.7.4 PC.PAR.7.5 PC.PAR.7.7 AP.2.3 AP.2.4 AP.2.5 AP.2.6 AP.2.7 AP.2.8 AP.2.9 AP.2.10 AP.2.11 AP.2.12 AP.2.13 AP.2.14 AP.2.15	Learning Expectations All Standards The days in this unit include days for AP Exam Review and testing.
PC.MM.1-4 PC.MP.1-8	PC.MM.1-4 PC.MP.1-8	PC.MM.1-4 PC.MP.1-8	PC.MM.1-4 PC.MP.1-8	PC.MM.1-4 PC.MP.1-8

Rationale: (Continued from SY 2025-2026)

Standard/Learning Expectation Change	Rationale										
<u>Unit Changes</u> <table border="1" data-bbox="275 337 831 532"> <thead> <tr> <th style="background-color: yellow;">FCS Ordering</th><th style="background-color: yellow;">College Board Ordering</th></tr> </thead> <tbody> <tr> <td>Unit 1</td><td>Unit 1</td></tr> <tr> <td>Unit 2</td><td>Unit 3</td></tr> <tr> <td>Unit 3</td><td>Unit 4</td></tr> <tr> <td>Unit 4</td><td>Unit 2</td></tr> </tbody> </table>	FCS Ordering	College Board Ordering	Unit 1	Unit 1	Unit 2	Unit 3	Unit 3	Unit 4	Unit 4	Unit 2	- College Board Unit 3 (Trigonometric and Polar Functions) is FCS Unit 2. Our aim is to synchronize the AP learning objectives with Georgia's Precalculus C&C curriculum map. This step will ensure a consistent learning experience for students, even if they need to transition from AP Precalculus to On-Level Precalculus. - College Board Unit 4 (Parameters, Vectors, and Matrices) is FCS Unit 3. The topics that need to be taught are crucial for students transitioning to AP Calculus AB. This ensures that they are adequately prepared and exposed to the necessary concepts and skills. - College Board Unit 2 (Exponential and Logarithmic) is FCS Unit 4. Indeed, students have previously encountered these topics in Algebra C&C and Advanced Algebra C&C. We have decided to teach it last as a review strategy, which also helps to maintain a lighter learning load in the second semester, especially considering the numerous interruptions for seniors. This approach ensures that students can effectively consolidate their knowledge without feeling overwhelmed.
FCS Ordering	College Board Ordering										
Unit 1	Unit 1										
Unit 2	Unit 3										
Unit 3	Unit 4										
Unit 4	Unit 2										
The Green learning expectations outline the concepts and skills students need to succeed in AP Calculus AB or BC. In preparing students for the AP Exam, it is also essential to equip them for the subsequent AP Calculus BC course.	- These learning expectations are essential for student success in AP Calculus AB or BC and should be explicitly taught to any sophomore or junior enrolled in this class. Focus the topic on piecewise-defined functions with limits. - PC.FGR.2.1 - PC.FGR.2.3 Focus the topic on partial fraction decomposition with non-repeating linear factors. - PC.FGR.2.9 Solve complex trigonometric equations involving factoring or periodic changes. - PC.AGR.4.3 Focus on graphing polar equations by understanding the movement and trajectory of curves without using technology. - PC.GSR.5.4 - PC.GSR.5.5										

	• Focus on the magnitude of a vector as it will expand students' knowledge to represent speed to find the total distance of a circular arc. • PC.AGR.6.5 • PC.AGR.6.6 • Introduce how to derive and use the sum formula for finite and infinite series with limits. • PC.PAR.7.3 • PC.PAR.7.4 • PC.PAR.7.5 • PC.PAR.7.7
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Unit 1: Polynomial and Rational Functions

42 Days

Unit Dates: 8/5/2026 - 10/9/2026

AP.1: Develop an understanding of three key function concepts while exploring polynomial and rational functions. The first concept is covariation, or how output values change in tandem with changing input values. The second concept is rates of change, including the average rate of change, the rate of change at a point, and changing rates of change.

AP.1.1A: Describe how the input and output values of a function vary together by comparing function values.

AP.1.1B: Construct a graph representing two quantities that vary with respect to each other in a contextual scenario.

AP.1.2A: Compare the rates of change at two points using average rates of change near the points.

AP.1.2B: Describe how two quantities vary together at different points and over different intervals of a function.

AP.1.3A: Determine the average rates of change for sequences and functions, including linear, quadratic, and other function types.

AP.1.3B: Determine the change in the average rates of change for linear, quadratic, and other function types.

AP.1.4A: Identify key characteristics of polynomial functions related to rates of change.

AP.1.5A: Identify key characteristics of a polynomial function related to its zeros when suitable factorizations are available or with technology.

AP.1.5B: Determine if a polynomial function is even or odd.

AP.1.6A: Describe end behaviors of polynomial functions.

PC.FGR.2.1: Graph piecewise-defined functions, including step functions and absolute value functions.

PC.FGR.2.3: Represent the limit of a function using both the informal definition and the graphical interpretation.

PC.FGR.2.9: Perform partial fraction decomposition of rational functions using non-repeated linear factors.

AP.1.7A: Describe end behaviors of rational functions.

AP.1.8A: Determine the zeros of rational functions.

AP.1.9A: Determine vertical asymptotes of graphs of rational functions.

AP.1.10A: Determine holes in graphs of rational functions.

AP.1.11A: Rewrite polynomial and rational expressions in equivalent forms.

AP.1.11B: Determine the quotient of two polynomial functions using long division.

AP.1.11C:	Rewrite the repeated product of binomials using the binomial theorem.
AP.1.12A:	Construct a function that is an additive and/or multiplicative transformation of another function.
AP.1.13A:	Identify an appropriate function type to construct a function model for a given scenario.
AP.1.13B:	Describe assumptions and restrictions related to building a function model.
AP.1.14A:	Construct a linear, quadratic, cubic, quartic, polynomial of degree n , or related piecewise-defined function model.
AP.1.14B:	Construct a rational function model based on context.
AP.1.14C:	Apply a function model to answer questions about a data set or contextual scenario.

Unit 2: Trigonometric and Polar Functions

41 Days

Unit Dates: 10/13/2026 - 12/16/2026

AP.3: Explore trigonometric functions and their relation to the angles and arcs of a circle. Since their output values repeat with every full revolution around the circle, trigonometric functions are ideal for modeling periodic, or repeated pattern phenomena. Furthermore, periodicity is found in human inventions and social phenomena. Polar functions, which are also explored in this unit, have deep ties to trigonometric functions as they are both based on the circle. Polar functions are defined on the polar coordinate system that uses the circular concepts of radii and angles to describe location instead of rectangular concepts of left-right and up-down, which students have worked with previously. Trigonometry serves as the bridge between the two systems.

- AP.3.1A:** Construct graphs of periodic relationships based on verbal representations.
- AP.3.1B:** Describe key characteristics of a periodic function based on a verbal representation.
- AP.3.2A:** Determine the sine, cosine, and tangent of an angle using the unit circle.
- AP.3.3A:** Determine coordinates of points on a circle centered at the origin.
- AP.3.4A:** Construct representations of the sine and cosine functions using the unit circle.
- AP.3.5A:** Identify key characteristics of the sine and cosine functions.
- AP.3.6A:** Identify the amplitude, vertical shift, period, and phase shift of a sinusoidal function.
- AP.3.7A:** Construct sinusoidal function models of periodic phenomena.
- AP.3.8A:** Construct representations of the tangent function using the unit circle.
- AP.3.8B:** Describe key characteristics of the tangent function.
- AP.3.8C:** Describe additive and multiplicative transformations involving the tangent function.
- AP.3.9A:** Construct analytical and graphical representations of the inverse of the sine, cosine, and tangent functions over a restricted domain.
- AP.3.10A:** Solve equations and inequalities involving trigonometric functions.
- AP.3.11A:** Identify key characteristics of functions that involve quotients of the sine and cosine functions.
- AP.3.12A:** Rewrite trigonometric expressions in equivalent forms with the Pythagorean identity.
- AP.3.12B:** Rewrite trigonometric expressions in equivalent forms with sine and cosine sum identities.
- AP.3.12C:** Solve equations using equivalent analytic representations of trigonometric functions.

PC.AGR.4.3: Solve trigonometric equations arising in modeling contexts. Include complex problems.

AP.3.13A: Determine the location of a point in the plane using both rectangular and polar coordinates.

AP.3.14A: Construct graphs of polar functions.

AP.3.15A: Describe characteristics of the graph of a polar function.

PC.GSR.5.4: Classify special polar equations and apply to contextual situations.

PC.GSR.5.5: Graph equations in the polar coordinate plane with and without the technology.

Unit 3: Functions Involving Parameters, Vectors and Matrices

28 Days

Unit Dates: 1/5/2027 - 2/12/2027

AP.4: Explore function types that expand their understanding of the function concept. Parametric functions have multiple dependent variables' values paired with a single input variable or parameter. Modeling scenarios with parametric functions allows students to explore change in terms of components. Another major function type in this unit involves matrices mapping a set of input vectors to output vectors. The ability to instantaneously map large quantities of vectors is the basis for vector-based computer graphics.

AP.4.1A: Construct a graph or table of values for a parametric function represented analytically.

AP.4.2A: Identify key characteristics of a parametric planar motion function that are related to position.

AP.4.3A: Identify key characteristics of a parametric planar motion function that are related to direction and rate of change.

AP.4.4A: Express motion around a circle or along a line segment parametrically.

AP.4.5A: Construct a graph of an equation involving two variables.

AP.4.5B: Determine how the two quantities related in an implicitly defined function vary together.

PC.AGR.6.5: Sketch the graph of a curve represented parametrically, indicating the direction of motion.

PC.AGR.6.6: Apply parametric equations to contextual problems.

AP.4.6A: Represent conic sections with horizontal or vertical symmetry analytically.

AP.4.7A: Represent a curve in the plane parametrically.

AP.4.7B: Represent conic sections parametrically.

AP.4.8A: Identify characteristics of a vector.

AP.4.8B: Determine sums and products involving vectors.

AP.4.8C: Determine a unit vector for a given vector.

AP.4.8D: Determine angle measures between vectors and magnitudes of vectors involved in vector addition.

AP.4.9A: Represent planar motion in terms of vector-valued functions.

AP.4.10A: Determine the product of two matrices.

AP.4.11A: Determine the inverse of a 2×2 matrix.

AP.4.11B:	Apply the value of the determinant to invertibility and vectors.
AP.4.12A:	Determine the output vectors of a linear transformation using a 2×2 matrix.
AP.4.13A:	Determine the association between a linear transformation and a matrix.
AP.4.13B:	Determine the composition of two linear transformations.
AP.4.13C:	Determine the inverse of a linear transformation.
AP.4.14A:	Construct a model of a scenario involving transitions between two states using matrices.
AP.4.14B:	Apply matrix models to predict future and past states for n transition steps.

Unit 4: Exponential and Logarithmic Functions

29 Days

Unit Dates: 2/22/2027 - 4/2/2027

AP.2: Developing an understanding of exponential and logarithmic functions. When an aspect of a phenomenon changes proportionally to the existing amount, exponential and logarithmic models are employed to harness the information. Exponential functions are key to modeling population growth, radioactive decay, interest rates, and the amount of medication in a patient. Logarithmic functions are useful in modeling sound intensity and frequency, the magnitude of earthquakes, the pH scale in chemistry, and the working memory in humans.

AP.2.1A: Express arithmetic sequences found in mathematical and contextual scenarios as functions of the whole numbers.

AP.2.1B: Express geometric sequences found in mathematical and contextual scenarios as functions of the whole numbers.

AP.2.2A: Construct functions of the real numbers that are comparable to arithmetic and geometric sequences.

AP.2.2B: Describe similarities and differences between linear and exponential functions.

PC.PAR.7.3: Determine the limit of a sequence if it exists.

PC.PAR.7.4: Demonstrate that a series is the sum of the sequence and represent series graphically, numerically, and symbolically.

PC.PAR.7.5: Describe the behavior of a series in terms of the limit of its partial sums.

PC.PAR.7.7: Derive and use the sum formula of an infinite geometric series to solve contextual problems to model real-life situations.

AP.2.3A: Identify key characteristics of exponential functions.

AP.2.4A: Rewrite exponential expressions in equivalent forms.

AP.2.5A: Construct a model for situations involving proportional output values over equal-length input-value intervals.

AP.2.5B: Apply exponential models to answer questions about a data set or contextual scenario.

AP.2.6A: Construct linear, quadratic, and exponential models based on a data set.

AP.2.6B: Validate a model constructed from a data set.

AP.2.7A: Evaluate the composition of two or more functions for given values.

AP.2.7B: Construct a representation of the composition of two or more functions.

AP.2.7C: Rewrite a given function as a composition of two or more functions.

AP.2.8A: Determine the input-output pairs of the inverse of a function.

AP.2.8B:	Determine the inverse of a function on an invertible domain.
AP.2.9A:	Evaluate logarithmic expressions.
AP.2.10A:	Construct representations of the inverse of an exponential function with an initial value of 1.
AP.2.11A:	Identify key characteristics of logarithmic functions.
AP.2.12A:	Rewrite logarithmic expressions in equivalent forms.
AP.2.13A:	Solve exponential and logarithmic equations and inequalities.
AP.2.13B:	Construct the inverse function for exponential and logarithmic functions.
AP.2.14A:	Construct a logarithmic function model.
AP.2.15A:	Determine if an exponential model is appropriate by examining a semi-log plot of a data set.
AP.2.15B:	Construct the linearization of exponential data.

Unit 5: Culminating Capstone Unit

30 Days

Unit Dates: 4/12/2027 - 5/21/2027

ALL Standards Addressed in this Unit

The capstone unit applies content that has already been learned in previous interdisciplinary PBLs and units throughout the school year. The capstone unit is an interdisciplinary unit that allows students to create a presentation, report, or demonstration that could include their models used to answer an overarching driving question. (e.g., Students can present their solution(s), findings, project, or answer to the driving question to a larger audience during the culminating capstone unit.)