AP Calculus BC Curriculum Map
Spring Semester

The spring semester of AP Calculus BC may be taken concurrently by students who are taking AP Calculus AB in the same year or by students who have taken the fall semester of AP Calculus BC following a previous year's study of AP Calculus AB. The BC Exam at the end of the semester tests students on both AB and BC topics.

- *Textbook:* Larson, R. and Battaglia, P. (2021). *Calculus for AP®*. 2nd ed.

TOPICS & TEXTBOOK CHAPTERS, SPRING SEMESTER	Duration	Month(s)
Unit 1: Infinite Series Chapter 7: Improper Integrals Chapter 8: Sequences, Series, Convergence, Geometric Series, Integral Test, p-Series, Comparisons of Series, Alternating Series	3 wks	Jan
Unit 2: Taylor Polynomials and Power Series Chapter 8: Conditional Convergence, Absolute Convergence, Ratio and Root Tests, Taylor Polynomials and Approximations, Power Series, Radius of Convergence, Interval of Convergence	2 wks	Jan-Feb
Unit 3: Representation of Functions by Power Series Chapter 8: Differentiation and Integration of Power Series, Geometric Power Series, Representation of Functions by Power Series, Taylor and Maclaurin Series, Using Series as Building Blocks to Form New Series, Using Power Series Representations to Integrate Functions, Using Power Series Representations to Find Limits of Functions, Alternating Series Remainder, Alternating Series Error Bound	2 wks	Feb
Unit 4: Parametric Functions and Polar Functions Chapter 8: Taylor's Remainder Theorem (Lagrange Error Bound) Chapter 9: Plane Curves, Parametric Equations, Calculus of Parametric Equations, Polar Coordinates and Polar Graphs, Polar Derivatives, Area of Region Bounded by a Single Polar Curve, Area of Region Bounded by Two or More Polar Curves	2 wks	Feb-Mar
Unit 5: Arc Length, Vectors, and Motion in the Plane Chapter 6: Rectangular Arc Length Chapter 9: Parametric Arc Length, Vectors, Vector-Valued Functions, Motion in the Plane, Velocity Vectors, Acceleration Vectors, Total Distance Traveled in the Plane Chapter 7: Integration by Parts, Tabular Method for Integration by Parts	2 wks	Mar
Unit 6: Miscellaneous BC Topics Chapter 5: Euler's Method, Logistic Growth Chapter 7: Improper Integrals Revisited, Integration by Method of Partial Fractions	2 wks	Mar-Apr
Unit 7: AP-Style Problem Solving Implementing Mathematical Processes, Connecting Representations, Justification, Communication and Notation, Free-Response Problem Solving, Multiple-Choice Problem Solving, Calculator and Non-Calculator Strategies for Problem Solving	3 wks	Apr
Unit 8: Final Project: Designing and Modeling a 3D-Printed Cookie Cutter Mathematical Modeling and Design Using Polar Functions, Using Tools for Mathematical Modeling and 3D-Printing (Desmos, Google Sheets, Fusion 360, Prusa Slicer), Applying Integrals to Solve Real-World Problems	2 wks	May