

**AP Calculus BC**  
**Course Number 27.0730010 (27.0730011)**  
**First Semester**

**Objective**

**Suggested Pacing**

**APCalcBC.1.01**

**3 days**

**Chapter 1, Section 1-3, pp. 41-66**

Estimates and evaluates limits from graphs or tables of data

**APCalcBC.1.02**

**2 days**

**Chapter 1, Section 4, pp. 67-78**

Defines continuity on an interval in terms of limits and verifies the Intermediate Value

**APCalcBC.1.03**

**2 days**

**Chapter 1, Section 5, pp. 79-86**

Defines and evaluates infinite limits using vertical asymptotes

**APCalcBC.1.04**

**2 days**

**Chapter 2, Section 1, pp. 91-101**

Interprets the derivative of a function geometrically, numerically, and analytically as an instantaneous rate of change and relates differentiability with continuity

**APCalcBC.1.05**

**2 days**

**Chapter 2, Section 2, pp. 102-113**

Applies the derivative to find slope, tangent lines, and velocity and approximates rate of change from graphs or tables

**APCalcBC.1.06**

**5 days**

**Chapter 2, Section 3-4, pp. 114-133**

Computes derivatives of functions using the Product, Quotient, and Chain Rule and applies higher order derivatives to problems involving acceleration

**APCalcBC.1.07**

**2 days**

**Chapter 2, Section 5, pp. 134-140**

Differentiates implicitly defined functions

**APCalcBC.1.08**

**3 days**

**Chapter 2, Section 6, pp. 141-149**

Applies definition of derivative to problem situations involving related rates of change

**APCalcBC.1.09**

**7 days**

**Chapter 3, Section 1-4, 6, pp. 155-186; 196-204**

Analyzes curves using the Extreme and Mean Value Theorems, Rolle's Theorem, and first and second derivative tests

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<b><u>APCalcBC.1.10</u></b> <b>Chapter 3, Section 5, pp. 187-195</b> Defines and evaluates infinite limits using vertical asymptotes	<b>2 days</b>
<b><u>APCalcBC.1.11</u></b> <b>Chapter 3, Section 7, pp. 205-214</b> Applies the derivative to solve optimization problems	<b>2 days</b>
<b><u>APCalcBC.1.12</u></b> <b>Chapter 3, Section 9, pp. 221-227</b> Uses differentials to find tangents and linear approximations	<b>2 days</b>
<b><u>APCalcBC.1.13</u></b> <b>Chapter 4, Sections 2, 3, 6, pp. 252-273, 299-300</b> Calculates areas as limits of Riemann sums using left, right, midpoint and trapezoidal approximations	<b>5 days</b>
<b><u>APCalcBC.1.14</u></b> <b>Chapter 4, Section 1, pp. 241-251</b> Finds antiderivatives using basic integration rules and initial conditions Including applications to motion	<b>3 days</b>
<b><u>APCalcBC.1.15</u></b> <b>Chapter 4, Section 4, pp. 274-286</b> Evaluates definite integrals using the Fundamental Theorem of Calculus	<b>2 days</b>
<b><u>APCalcBC.1.16</u></b> <b>Chapter 4, Section 5, pp. 287-298</b> Finds antiderivatives using substitution of variables	<b>2 days</b>
<b><u>APCalcBC.1.17</u></b> <b>Chapter 5, Sections 1-5, pp. 311-357</b> Differentiates and integrates logarithmic and exponential functions	<b>9 days</b>

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<b><u>APCalcBC.1.18</u></b> <b>Chapter 5, Sections 6-7, pp. 358-376</b> Solves differential equations of the form $y' = kx$	<b>3 days</b>
<b><u>APCalcBC.1.19</u></b> <b>Chapter 5, Sections 8-9, pp. 377-391</b> Differentiates and integrates trigonometric functions and their inverses	<b>3 days</b>
<b><u>APCalcBC.1.20</u></b> <b>Chapter 6, Sections 1-2, pp. 407-426</b> Computes the area between curves and the volume of solids using the disc method and cross sections.	<b>7 days</b>
<b><u>APCalcBC.1.21</u></b> Review all topics included on the Advanced Placement examination	<b>5-7 days</b>

**AP Calculus BC**  
**Course Number 27.0730010 (27.0730012)**

**Second Semester**

**Objective**

**Suggested Pacing**

**APCalcBC.2.01**

**Chapter 6, Section 4, pp. 435-444**

Computes the length of a curve using integrals

**2 days**

**APCalcBC.2.02**

**Chapter 6, Section 5, pp. 445-453**

Computes the work done by a variable force

**3 days**

**APCalcBC.2.03**

**Chapter 7, Section 2 and 5, pp. 481-489, 508-510, 515**

Integrates anti-derivatives by parts and simple partial fractions (non-repeating linear factors).

**3 days**

**APCalcBC.2.04**

**Chapter 7, Section 7, pp. 523-542**

Applies L'Hospital's Rule to indeterminate forms of limits and in determining convergence of improper integrals

**4 days**

**APCalcBC.2.05**

**Chapter 9, Section 2-3, pp. 652-670**

Computes first and second derivatives; finds horizontal and vertical tangents; sketches graphs, and determines arc length of parametric equations

**4 days**

**APCalcBC.2.06**

**Chapter 9, Section 4-5, pp. 671-688**

Computes first derivatives; finds horizontal and vertical tangents; sketches graphs; computes area and determines arc length of polar regions

**4 days**

**APCalcBC.2.07**

**Chapter 10, Section 1, pp. 701-711**

**Chapter 11, Section 1-3, pp. 769-793**

Applies properties of vector operations, computes and analyzes the velocity and acceleration vectors and speed

**4 days**

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**APCalcBC.2.08**

**2 days**

Geometrically interprets differential equations via slope fields and the relationship between slope fields (direction fields) and derivatives of implicitly defined functions and uses Euler's method to calculate numerical solutions to differential equations

**APCalcBC.2.09**

**10 days**

**Chapter 8, Section 1-6, pp. 547-595**

Determines convergence or divergence of geometric, harmonic, p-series and alternating series (error bound) with a variety of tests for convergence

**APCalcBC.2.10**

**6-10 days**

**Chapter 8, Section 7-10, pp. 596-631**

Approximates polynomials with Taylor and Maclaurin series; manipulates Taylor series and uses shortcuts for computing Taylor series; estimates the remainder associated with a Taylor polynomial; and finds the radius and interval of convergence of power series

**APCalcBC.2.11**

**15-20 days**

Review all topics included on the Advanced Placement examination.