

## Southern Cayuga Central School District - Curriculum Map

Subject: AP Calculus AB

School Year: 2022-2023

Title	Essential Questions & Vocabulary	Content Skills	Major Assessments	Time Frame
Limits and Continuity	<ul style="list-style-type: none"> <li>● Rate of Change</li> <li>● Average Rate of Change</li> <li>● Limit</li> <li>● Substitution</li> <li>● Cancellation/Simplification</li> <li>● Rationalization</li> <li>● Trigonometry (sine, cosine, tangent, cosecant, secant, cotangent)</li> <li>● Continuity/Continuous</li> <li>● Infinite/Infinity</li> <li>● Asymptotes</li> <li>● Intermediate Value Theorem</li> </ul>	<ul style="list-style-type: none"> <li>● Instantaneous Rate of Change</li> <li>● Finding Limits Graphically</li> <li>● Finding Limits Numerically</li> <li>● Properties of Limits</li> <li>● Limits of Transcendental Functions</li> <li>● Continuity</li> <li>● Infinite Limits</li> <li>● Limits at Infinity</li> <li>● Intermediate Value Theorem</li> </ul>	<ul style="list-style-type: none"> <li>● 2 Quizzes</li> <li>● Content Covered on the Marking Period 1 Exam</li> <li>● Content Covered on the AP EXAM (May 8th)</li> </ul>	3 weeks
Basic Derivatives	<ul style="list-style-type: none"> <li>● Tangent/Tangent Line</li> <li>● Derivative</li> <li>● Differentiate</li> <li>● Linearity</li> <li>● Differentiability</li> <li>● Product</li> <li>● Quotient</li> <li>● Position</li> <li>● Speed</li> <li>● Velocity</li> <li>● Acceleration</li> </ul>	<ul style="list-style-type: none"> <li>● Tangent Lines</li> <li>● Derivatives &amp; Tangent Lines</li> <li>● Differentiability</li> <li>● Basic Differentiation Rules</li> <li>● The Product Rule</li> <li>● The Quotient Rule</li> <li>● Applications of Rate of Change</li> </ul>	<ul style="list-style-type: none"> <li>● 2 Quizzes</li> <li>● Content Covered on the Marking Period 1 Exam</li> <li>● Content Covered on the AP EXAM (May 8th)</li> </ul>	2 Weeks
Differentiation of	<ul style="list-style-type: none"> <li>● Chain Rule</li> </ul>	<ul style="list-style-type: none"> <li>● The Chain Rule</li> </ul>	<ul style="list-style-type: none"> <li>● 2 Quizzes</li> </ul>	2 Weeks

Other Structures	<ul style="list-style-type: none"> <li>• Implicit</li> <li>• Inverse Function</li> <li>• Base</li> <li>• Logarithm</li> </ul>	<ul style="list-style-type: none"> <li>• Symbolic Differentiation</li> <li>• Implicit Differentiation</li> <li>• Inverse Derivatives</li> <li>• Derivatives of Inverse Trigonometric Functions</li> </ul>	<ul style="list-style-type: none"> <li>• Content Covered on the Marking Period 2 Exam</li> <li>• Content Covered on the AP EXAM (May 8th)</li> </ul>	
Contextual Applications of Differentiation	<ul style="list-style-type: none"> <li>• Related Rates</li> <li>• Overestimate</li> <li>• Underestimate</li> <li>• Indeterminate Form</li> </ul>	<ul style="list-style-type: none"> <li>• Interpretations of the Derivative</li> <li>• Straight Line Motion: Position, Velocity, and Acceleration</li> <li>• Other Rates of Change</li> <li>• Related Rates</li> <li>• Local Linearity</li> <li>• Linearization</li> <li>• L'Hospital's Rule</li> </ul>	<ul style="list-style-type: none"> <li>• 2 Quizzes</li> <li>• Content Covered on the Marking Period 3 Exam</li> <li>• Content Covered on the AP EXAM (May 8th)</li> </ul>	3 Weeks
Analytical Applications of Differentiation	<ul style="list-style-type: none"> <li>• Mean Value Theorem</li> <li>• Local Extrema</li> <li>• Global Extrema</li> <li>• Extreme Value Theorem</li> <li>• First Derivative Test</li> <li>• Increasing</li> <li>• Decreasing</li> <li>• Maximum</li> <li>• Minimum</li> <li>• Second Derivative Test</li> <li>• Point of Inflection</li> <li>• Concave Up</li> <li>• Concave Down</li> <li>• Optimize</li> </ul>	<ul style="list-style-type: none"> <li>• Mean Value Theorem</li> <li>• Extrema on an Interval</li> <li>• First Derivative Test</li> <li>• Second Derivative Test</li> <li>• Curve Sketching</li> <li>• Optimization Problems</li> </ul>	<ul style="list-style-type: none"> <li>• 2 Quizzes</li> <li>• Content Covered on the Marking Period 3 Exam</li> <li>• Content Covered on the AP EXAM (May 8th)</li> </ul>	3.5 Weeks
Integration	<ul style="list-style-type: none"> <li>• Riemann Sum (left, right, midpoint)</li> <li>• Trapezoidal Rule</li> <li>• Sequence</li> </ul>	<ul style="list-style-type: none"> <li>• Approximating Area with Riemann Sums</li> <li>• Sigma Notation and Riemann Sums</li> </ul>	<ul style="list-style-type: none"> <li>• 1 Quiz</li> <li>• Content Covered on the Marking Period 3 Exam</li> </ul>	2.5 Weeks

	<ul style="list-style-type: none"> <li>● Fundamental Theorem of Calculus</li> <li>● Displacement</li> <li>● Definite Integral</li> <li>● Area</li> </ul>	<ul style="list-style-type: none"> <li>● Accumulation Functions</li> <li>● Properties of Definite Integrals</li> </ul>	<ul style="list-style-type: none"> <li>● Content Covered on the AP EXAM (May 8th)</li> </ul>	
Integration (Continued)	<ul style="list-style-type: none"> <li>● Antiderivative</li> <li>● Change of Variable</li> <li>● Indefinite Integral</li> </ul>	<ul style="list-style-type: none"> <li>● Antiderivatives</li> <li>● Indefinite Integrals</li> <li>● Fundamental Theorem of Calculus</li> <li>● Integration by Substitution</li> <li>● Integration of Transcendental Functions</li> </ul>	<ul style="list-style-type: none"> <li>● 1 Quiz</li> <li>● Content Covered on the Marking Period 4 Exam</li> <li>● Content Covered on the AP EXAM (May 8th)</li> </ul>	2 Weeks
Differential Equations	<ul style="list-style-type: none"> <li>● Differential Equation</li> <li>● Slope Field</li> <li>● Initial Conditions</li> <li>● Separation of Variables</li> <li>● Growth</li> <li>● Decay</li> </ul>	<ul style="list-style-type: none"> <li>● Introduction to Differential Equations</li> <li>● Sketching Slope Fields</li> <li>● Separation of Variables</li> <li>● Exponential Models</li> </ul>	<ul style="list-style-type: none"> <li>● 2 Quizzes</li> <li>● Content Covered on the Marking Period 4 Exam</li> <li>● Content Covered on the AP EXAM (May 8th)</li> </ul>	2.5 Weeks
Applications of Integration	<ul style="list-style-type: none"> <li>● Average Value</li> <li>● Accumulation</li> <li>● Volume</li> <li>● Revolution</li> <li>● Cross Sections</li> <li>● Disc</li> <li>● Washer</li> </ul>	<ul style="list-style-type: none"> <li>● Average Value for Integrals</li> <li>● Particle Motion</li> <li>● Accumulation Functions in Context</li> <li>● Area Between Two Curves</li> <li>● Volumes by Cross Sections</li> <li>● Volumes of Rotation</li> </ul>	<ul style="list-style-type: none"> <li>● 2 Quizzes</li> <li>● Content Covered on the Marking Period 5 Exam</li> <li>● Content Covered on the AP EXAM (May 8th)</li> </ul>	4 Weeks
AP Review		<ul style="list-style-type: none"> <li>● Targeted Review Lessons</li> <li>● Practice Exams</li> </ul>	AP Exam	3 Weeks
<b>AP Exam is May 8, 2023</b>				