

AP Calculus AB

UNIT	Standards Addressed
Unit 1: Limits and Continuity	<ol style="list-style-type: none"> 1. Introducing Calculus 2. Defining Limits/Limit Notation 3. Estimating Limits from Graphs and Tables 4. Determining Limits Using Algebraic Properties and Manipulation 5. Selecting Procedures for Determining Limits 6. Determining Limits Using the Squeeze Theorem 7. Connecting Multiple Representations of Limits 8. Exploring Discontinuities 9. Defining Continuity of a Point 10. Confirming Continuity over an interval 11. Removing Discontinuities 12. Connecting Infinite Limits and Vertical Asymptotes 13. Working with the Intermediate Value Theorem
Unit 2: Differentiation: Definition and Basic Derivative Rules	<ol style="list-style-type: none"> 1. Defining Average and Instantaneous Rates of Change at a Point 2. Defining the Derivative of a Function and Using Derivative Notation 3. Estimating Derivatives of a Function at a Point 4. Connecting Differentiability and Continuity; Determining When Derivatives Do and Do Not Exist 5. Applying the Power Rule 6. Derivative Rules: Constant, Sum, Difference, and Constant Multiple 7. Derivatives of $\cos x$, $\sin x$, e^x, and $\ln x$. 8. The Product Rule 9. The Quotient Rule 10. Finding the Derivatives of Tangent, Cotangent, Secant, and/or Cosecant Functions
Unit 3: Differentiation: Composite, Implicit, and Inverse Functions	<ol style="list-style-type: none"> 1. The Chain Rule 2. Implicit Differentiation 3. Differentiating Inverse Functions 4. Selecting Procedures for Calculus Derivatives 5. Calculating Higher Order Derivatives
Unit 4: Contextual Applications of Differentiation	<ol style="list-style-type: none"> 1. Interpreting the Meaning of the Derivative in Context 2. Straight-Line Motion: Connecting Position, Velocity, and Acceleration 3. Rates of Change in Applied Contexts Other Than Motion 4. Introduction to Related Rates 5. Solving Related Rates Problems 6. Approximating Values of a Function Using Local Linearity and Linearization 7. Using L'Hospital's Rule for Determining Limits of Indeterminate Forms

Fall:
TERM 1

Spring:
Term 3

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	UNIT	Standards Addressed
Fall: TERM 2 Spring: Term 4	Unit 5: Analytical Applications of Differentiation	<ol style="list-style-type: none"> 1. Using the Mean Value Theorem 2. Extreme Value Theorem, Global Versus Local Extrema, and Critical Points. 3. Determining Intervals on Which a Function is Increasing or Decreasing 4. Using the First Derivative Test to Determine Relative (Local) Extrema 5. Using the Candidates Test to Determine Absolute (Global) Extrema 6. Determining the Concavity of Functions over Their Domains 7. Using the Second Derivative Test to Determine Extrema 8. Sketching Graphs of Functions and Their Derivatives 9. Introduction to Optimization Problems 10. Exploring Behaviors of Implicit Relations
	Unit 6: Integration and Accumulation of Change	<ol style="list-style-type: none"> 1. Exploring Accumulations of Change 2. Approximating Areas with Riemann Sums 3. Riemann Sums, Summation Notation, and Definite Integral Notation 4. The Fundamental Theorem of Calculus and Accumulation Functions 5. Interpreting the Behavior of Accumulation Functions Involving Area 6. Applying Properties of Definite Integrals 7. The Fundamental Theorem of Calculus and Definite Integrals 8. Finding Antiderivatives and Indefinite Integrals; Basic Rules and Notation 9. Integrating Using Substitution 10. Integrating Functions Using Long Division and Completing the Square 11. Selecting Techniques for Antidifferentiation
	Unit 7: Differential Equations	<ol style="list-style-type: none"> 1. Modeling Situations with Differential Equations 2. Verifying Solutions for Differential Equations 3. Sketching Slope Fields 4. Reasoning Using Slope Fields 5. Finding General Solutions Using Separation of Variables 6. Finding Particular Solutions Using Separation of Variables 7. Exponential Models with Differential Equations
	Unit 8: Applications of Integrals	<ol style="list-style-type: none"> 1. Finding the Average Value of a Function on an Interval 2. Connecting Position, Velocity, and Acceleration of Functions Using Integrals 3. Using Accumulation Functions and Definite Integrals in Applied Contexts CONT.....

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	UNIT	Standards Addressed
Fall: TERM 2 Spring: Term 4	Unit 8: Applications of Integrals	<ol style="list-style-type: none"> 1. Finding the Average Value of a Function on an Interval 2. Connecting Position, Velocity, and Acceleration of Functions Using Integrals 3. Using Accumulation Functions and Definite Integrals in Applied Contexts 4. Finding the Area Between Curves Expressed and Functions of x 5. Finding the Area Between Curves Expressed as Functions of y 6. Finding the Area Between Curves that Intersect at More than Two Points 7. Volumes with Cross Sections: Triangles and Semicircles 8. Volume with Disc Method: Revolving Around the x- or y-Axis 9. Volume with Disc Method: Revolving Around Other Axes 10. Volume with Washer Method: Revolving Around the x- or y-Axis

Major Assignments	Unit Tests
Field Trips	No Field Trips
Instructional Materials	Canvas