

# AP Calculus AB Syllabus

*\*Sections Align to Calculus of a Single Variable, Seventh edition – By Larson*

## FIRST MARKING PERIOD

### Unit 1: Limits

- 1.1 A Preview of calculus
- 1.2 Finding Limits Numerically and Analytically
- 1.3 Evaluating Limits Analytically
- 1.4 Continuity and One-Sided Limits
- 1.5 Infinite Limits

### Unit 2: Derivatives

- 2.1 The Derivative and the Tangent Line Problem
- 2.2 Basic Differentiation Rules and Rates of Change
- 2.3 The Product and Quotient Rules and Higher-Order Derivatives
- 2.4 The Chain Rule
- 5.1 The Natural Logarithmic Function: Differentiation
- 5.4 Exponential Functions: Differentiation and Integration (*Differentiation Only*)
- 5.5 Bases Other than e and Applications
- 7.7 Indeterminate Forms and L'Hopital's Rule

## SECOND MARKING PERIOD

### Unit 2: Derivatives continued

- 2.6 Related Rates
- 3.1 Extrema on an Interval
- 3.2 Rolle's Theorem and the Mean Value Theorem
- 3.3 Increasing and Decreasing Functions and the First Derivative Test
- 3.4 Concavity and the Second Derivative Test
- 3.5 Limits at Infinity
- 3.6 A Summary of Curve Sketching
- 3.7 Optimization Problems
- 3.8 Newton's Method
- 3.9 Differentials

### Unit 3: Integrals

- 4.1 Antiderivatives and Indefinite Integration
- 4.2 Area
- 4.3 Riemann Sums and Definite Integral
- 4.4 The fundamental Theorem of Calculus
- 4.5 Integration by Substitution

- 4.6 Numerical Integration
- 5.1 The Natural Logarithmic Function: Differentiation
- 5.2 The Natural Logarithm Function: Integration
- 5.3 Inverse Functions
- 5.4 Exponential Functions
- 5.5 Bases Other than  $e$  and Applications

### **THIRD MARKING PERIOD**

#### Unit 3: Integrals continued

- 5.6 Differential Equations: Growth & Decay
- 5.8 Inverse Trigonometric Functions: Differentiation
- 5.9 Inverse Trigonometric Functions: Integration
- 6.1 Area of a Region Between Two Curves
- 6.2 Volume: The Disk Method
- 6.3 Volume: The Shell Method

### **FOURTH MARKING PERIOD**

#### Unit 4: Review for AP Exam, Integration by Parts, & Projects

- Review for AP Exam
- 7.2 Integration by Parts
- Project(s) [As time allows]

### **Assessment Information**

<b><u>Marking Period 1</u></b>	<b><u>Marking Period 2</u></b>	<b><u>Marking Period 3</u></b>	<b><u>Marking Period 4</u></b>
Major (MAJ): Summative 65%	Major (MAJ): Summative 65%	Major (MAJ): Summative 65%	Major (MAJ): Summative 65%
Minor (MIN): Formative 25%	Minor (MIN): Formative 25%	Minor (MIN): Formative 25%	Minor (MIN): Formative 25%
Class Participation (CP): 5%	Class Participation (CP): 5%	Class Participation (CP): 5%	Class Participation (CP): 5%
Homework (HW): 5%	Homework (HW): 5%	Homework (HW): 5%	Homework (HW): 5%