AP Calculus AB Curriculum Map

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

TOPICS & TEXTBOOK CHAPTERS	Duration	Month(s)
Unit 1: Limits and Their Properties Chapter 1: Finding Limits Graphically and Numerically, Evaluating Limits Analytically, Continuity, One-Sided Limits, Infinite Limits, Limits at Infinity	3 wks	Aug-Sept
Unit 2: Differentiation Chapter 2: Derivatives, Tangent Line Problem, Basic Differentiation Rules, Rates of Change, Product & Quotient Rules, Higher Order Derivatives, Chain Rule, Implicit Differentiation, Related Rates, Derivatives of Inverse Functions	5 wks	Sept-Oct
Unit 3: Applications of Differentiation Chapter 3: Extrema on an Interval (Max/Min), Rolle's Theorem, Mean Value Theorem, Increasing and Decreasing Functions, First Derivative Test, Concavity, Second Derivative Test, Optimization Problems, Linear Approximation, Differentials Chapter 7: Indeterminate Forms, L'Hôpital's Rule	6 wks	Oct-Nov
Unit 4: Integration Chapter 4: Antiderivatives, Indefinite Integration, Area, Riemann Sums, Definite Integrals, Fundamental Theorem of Calculus, 2nd Fundamental Theorem of Calculus, Accumulation Functions, Integration by Substitution, Net Change Theorem, Integration Applications to Motion on a Line, Natural Logarithm Function and Integration, Inverse Trigonometric Functions and Integration, Riemann Sum Approximations, Trapezoidal Sum, Midpoint Sum	9 wks	Nov-Jan
Unit 5: Differential Equations Chapter 5: Slope Fields, Separable Differential Equations, Exponential Growth, Newton's Law of Cooling	3 wks	Feb-Mar
Unit 6: Area and Volume Chapter 6: Area of a Region Between Two Curves, Volume (Disk Method & Washer Method), Volume of Solid with Known Cross-Sections	3 wks	Mar-Apr
Unit 7: Calculus Applications and Connections Average Value, Rate-In-Rate-Out Problems, Particle Motion Using Integration, Buffon's Needle Experiment, Interpreting Derivatives and Integrals in Applied Contexts	2 wks	Mar-Apr
Unit 8: 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 9: Final Project: Designing and Modeling a 3D-Printed Goblet Mathematical Modeling and Design Using Piecewise-Defined Functions, Using Tools for Mathematical Modeling and 3D-Printing (Desmos, Google Sheets, Fusion 360, Prusa Slicer), Applying Derivatives and Integrals to Solve Real-World Problems	2 wks	May