Cornwall-Lebanon School District Curriculum Overview

AP Calculus AB- High School

length of time in weeks	Concepts & Competencies	Common Assessments	Academic Standards AP Calculus AB National Framework
Unit 1 — 3	**Limits and Continuity** Students will express limits symbolically using correct notation and interpret limits expressed symbolically. Students will determine and estimate limits of functions. Students will deduce and interpret behavior of functions using limits. Students will analyze functions for intervals of continuity or points of discontinuity. Students will determine the applicability of important calculus theorems using continuity.	➢ Limits Quiz ➢ Limits and Continuity Test	EU 1.1 EU 1.2
Unit 2 — 3	**Derivative Theory** Students will identify the derivative of a function as the limit of a difference quotient. Students will estimate derivatives. Students will recognize the connection between differentiability and continuity. Students will interpret the meaning of a derivative within a problem. Students will solve problems involving the slope of a tangent line.	➢ Finding and Using Derivatives Quiz ➢ Concepts of Derivatives Test	EU 2.1 EU 2.2 EU 2.3
Unit 3 — 6	**Finding Derivatives** Students will calculate derivatives. Students will determine higher order derivatives. Students will interpret the meaning of a derivative within a problem. Students will solve problems involving rates of change in applied contexts.	➢ Particle Motion and Trigonometric Derivatives Quiz ➢ 3.1-3.6 Test ➢ Marking Period 1 Exam (Cumulative) ➢ Implicit Differentiation & Exponential and Logarithmic Derivatives Quiz ➢ Implicit Differentiation and Transcendental Functions Test	EU 2.1 EU 2.3
Unit 4 — 4	**Derivative Applications** Students will use derivatives to analyze properties of a function. Students will solve problems involving related rates, optimization, and rectilinear motion. Students will apply the Mean Value Theorem to describe the behavior of a function	➢ 4.1-4.3 Quiz ➢ Unit 4 Take Home Test	EU 1.1 EU 2.2 EU 2.3 EU 2.4

	over an interval. Students will determine limits of functions using L'Hospital's Rule.		
Unit 5 2	<u>Antiderivatives and Slope Fields</u> Students will verify solutions to differential equations. Students will estimate solutions to differential equations. Students will recognize antiderivatives of basic functions. Students will analyze differential equations to obtain general and specific solutions.	➢ Unit 5 Quiz ➢ Midterm Exam (Cumulative)	EU 2.3 EU 3.1 EU 3.5
Unit 6 7	<u>Integration and Integration Techniques</u> Students will interpret the definite integral as the limit of a Riemann sum and express the limit of a Riemann sum in integral notation. Students will approximate a definite integral. Students will calculate a definite integral using areas and properties of definite integrals. Students will analyze functions defined by an integral. Students will calculate antiderivatives and evaluate definite integrals. Students will interpret the meaning of a definite integral within a problem. Students will apply definite integrals to problems involving the average value of a function. Students will interpret, create, and solve differential equations from problems in context.	➢ RAM Quiz ➢ 5.1-5.4 Test ➢ Integration Test	EU 3.2 EU 3.3 EU 3.4 EU 3.5
Unit 7 4	<u>Applications of Integrals</u> Students will apply definite integrals to problems involving motion. Students will apply definite integrals to problems involving area and volume. Students will use the definite integral to solve problems in various contexts.	➢ Area Between Curves Quiz ➢ Volumes of Solids Quiz ➢ Marking Period 3 Exam (Cumulative)	EU 3.4