Cornwall-Lebanon School District Curriculum Overview

CP Calculus - High School

length of time in weeks	Concepts & Competencies	Common Assessments	Academic Standards AP Calculus AB National Framework & PA Core
Unit 1 — 7	**Limits and Continuity** Students will evaluate functions graphically and algebraically. Students will graph piecewise functions. Students will determine the domain and range of a function. Students will evaluate limits graphically and algebraically. Students will evaluate limits as x approaches infinity. Students will use the concepts of limits and continuity to sketch functions. Students will analyze functions for points of discontinuity. Students will determine how to make a function continuous.	➢ Functions Quiz ➢ Limits Quiz ➢ Infinite Limits Quiz ➢ Continuity Quiz ➢ Limits and Continuity Test	EU 1.1 EU 1.2 CC.2.2.HS.C.1 CC.2.2.HS.C.2
Unit 2 — 3	**Derivative Theory** Students will estimate derivative using the Secant Method. Students will simplify rational expressions. Students will use the limit definition of the derivative. Students will write the equation of a tangent line to a curve.	➢ Secant Method and Rational Expression Quiz ➢ Marking Period 1 Exam ➢ Limit Definition of the Derivative Quiz	EU 2.1 EU 2.3 CC.2.2.HS.D.6
Unit 3 — 6	**Derivatives Rules** Students will find the derivative of a function using the power, product, quotient, and chain rules. Students will find higher order derivatives. Students will solve rates of change and velocity problems. Using the graph of a function, students will estimate the graph of its derivative. Students will find derivatives using multiple rules.	➢ Power Rule Quiz ➢ Velocity Quiz ➢ Derivative Rules Quiz ➢ Unit 3 Test	EU 2.1 EU 2.3

Unit 4 	**Other Derivative Rules** Students will graph and solve problems using trigonometric functions. Students will use the inside-out rule to find the derivative of trigonometric functions. Students will solve equations using exponentials and logarithms. Students will calculate the derivative of exponential and logarithmic functions. Students will use implicit differentiation to find derivatives.	➢ Trigonometry Quiz ➢ Midterm Exam (Cumulative) ➢ Trigonometry Derivative Quiz ➢ Evaluating exponentials and logarithms Quiz ➢ Exponentials and Logarithms Quiz ➢ Implicit Differentiation Quiz ➢ Derivative Test	EU 1.1 EU 2.1 EU 2.3 CC.2.2.HS.C.7 CC.2.2.HS.C.9
Unit 5 	**Derivative Applications** Students will solve related rates problems. Students will use the first and second derivatives to sketch the graph of a function. Students will solve optimization problems.	➢ Related Rates Quiz ➢ Related Rates Video Project ➢ Curve Sketching Quiz ➢ Marking Period 3 Exam ➢ Optimization Quiz ➢ Candy Box Project ➢ Business Applications Quiz	EU 2.1 EU 2.2 EU 2.3
Unit 6 	**Antiderivatives and Integration** Students will determine the antiderivative of a function. Students will solve initial value problems. Students will use the Fundamental Theorem of Calculus to evaluate definite integrals. Students will use integrals to find the area between two curves.	➢ Antiderivative Quiz ➢ Definite Integrals Quiz ➢ Area Quiz ➢ Final Exam (Cumulative)	EU 3.1 EU 3.3