





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	<p style="text-align: center;"><u>Limits and Continuity</u></p> <p>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.</p>	<ul style="list-style-type: none"> ➤ 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	<p style="text-align: center;"><u>Derivative Theory</u></p> <p>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.</p>	<ul style="list-style-type: none"> ➤ 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	<p style="text-align: center;"><u>Derivatives Rules</u></p> <p>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.</p>	<ul style="list-style-type: none"> ➤ Power Rule Quiz ➤ Velocity Quiz ➤ Derivative Rules Quiz ➤ Unit 3 Test 	EU 2.1 EU 2.3

<p>Unit 4</p> <p>8</p>	<p><u>Other Derivative Rules</u></p> <p>Students will graph and solve problems using trigonometric functions.</p> <p>Students will use the inside-out rule to find the derivative of trigonometric functions.</p> <p>Students will solve equations using exponentials and logarithms.</p> <p>Students will calculate the derivative of exponential and logarithmic functions.</p> <p>Students will use implicit differentiation to find derivatives.</p>	<ul style="list-style-type: none"> ➤ Trigonometry Quiz ➤ Midterm Exam (Cumulative) ➤ Trigonometry Derivative Quiz ➤ Evaluating exponentials and logarithms Quiz ➤ Exponentials and Logarithms Quiz ➤ Implicit Differentiation Quiz ➤ Derivative Test 	<p>EU 1.1</p> <p>EU 2.1</p> <p>EU 2.3</p> <p>CC.2.2.HS.C.7</p> <p>CC.2.2.HS.C.9</p>
<p>Unit 5</p> <p>8</p>	<p><u>Derivative Applications</u></p> <p>Students will solve related rates problems.</p> <p>Students will use the first and second derivatives to sketch the graph of a function.</p> <p>Students will solve optimization problems.</p>	<ul style="list-style-type: none"> ➤ Related Rates Quiz ➤ Related Rates Video Project ➤ Curve Sketching Quiz ➤ Marking Period 3 Exam ➤ Optimization Quiz ➤ Candy Box Project ➤ Business Applications Quiz 	<p>EU 2.1</p> <p>EU 2.2</p> <p>EU 2.3</p>
<p>Unit 6</p> <p>4</p>	<p><u>Antiderivatives and Integration</u></p> <p>Students will determine the antiderivative of a function.</p> <p>Students will solve initial value problems.</p> <p>Students will use the Fundamental Theorem of Calculus to evaluate definite integrals.</p> <p>Students will use integrals to find the area between two curves.</p>	<ul style="list-style-type: none"> ➤ Antiderivative Quiz ➤ Definite Integrals Quiz ➤ Area Quiz ➤ Final Exam (Cumulative) 	<p>EU 3.1</p> <p>EU 3.3</p>