

<b>Course Title:</b>	<b>Business Calculus</b>
<b>Department:</b>	<b>Mathematics</b>
<b>Grade Level:</b>	<b>11-12</b>
<b>Time Per Day/Week:</b>	<b>42 minutes per day/everyday</b>
<b>Length of Course:</b>	<b>Full-year</b>

<b>Course Overview:</b>
<p>Calculus is the study of how things change. This calculus course is designed for the student who plans to pursue a non-science-related field in college. Business Calculus begins with a brief review of precalculus concepts and then moves to the study of limits, derivatives, and integrals. These concepts will be applied to polynomial, power, rational, exponential, and logarithmic functions. This course also includes an introduction to the calculus of several variables. This course and the CHS course cover the same content. This course differs from AP Calculus classes by placing less emphasis on trigonometric functions and proof of theorems; more emphasis is placed on the use and application of calculus concepts.</p>

<b>Primary Resources:</b>
<p><i>Brief Calculus: An Applied Approach, 10th edition</i>; <a href="#">Cengage Learning</a> (2017) by Ron Larson  Computer-Adaptive Resources:</p> <ul style="list-style-type: none"> <li>Standards-Aligned Application &amp; Assessment: <a href="#">WebAssign, Cengage</a></li> </ul>

<b>Unit 1 Name:</b>	Functions, Graphs and Limits
<b>Days in Unit:</b>	15
<b>Representative Learning Goals</b>	
<ul style="list-style-type: none"> <li>Summarize defining properties of a function to describe characteristics of it</li> <li>Evaluate and analyze limits numerically, analytically and graphically</li> <li>Analyze functions for intervals of continuity or points of discontinuity</li> </ul>	

<b>Unit 2 Name:</b>	Derivative Theory and Techniques
<b>Days in Unit:</b>	33
<b>Representative Learning Goals</b>	
<ul style="list-style-type: none"> <li>• Identify the derivative of a function as the limit of a difference quotient</li> <li>• Calculate derivatives</li> <li>• Calculate higher-order derivatives</li> <li>• Interpret the meaning of a derivative within a problem</li> <li>• Recognize the connection between differentiability and continuity</li> </ul>	

<b>Unit 3 Name:</b>	Derivative Applications
<b>Days in Unit:</b>	40
<b>Representative Learning Goals</b>	
<ul style="list-style-type: none"> <li>• Use derivatives to analyze the properties of a function</li> <li>• Use derivatives to construct a graphical representation of a function</li> <li>• Solve problems involving related rates, optimization, and motion</li> </ul>	

<b>Unit 4 Name:</b>	Integration Techniques
<b>Days in Unit:</b>	46
<b>Representative Learning Goals</b>	
<ul style="list-style-type: none"> <li>• Calculate antiderivatives.</li> <li>• Calculate a definite integral using areas and properties of definite integrals</li> <li>• Use the definite integral to solve problems in various contexts</li> </ul>	

<b>Unit 5 Name:</b>	Integration Applications and Mathematical Modeling
<b>Days in Unit:</b>	17
<b>Representative Learning Goals</b>	
<ul style="list-style-type: none"> <li>• Apply definite integrals to problems involving the average value of a function, motion and area</li> <li>• Evaluate an improper integral or show that an improper integral diverges</li> <li>• Analyze differential equations to obtain general and specific solutions</li> </ul>	

<b>Unit 6 Name:</b>	Calculus of Several Variables
<b>Days in Unit:</b>	29
<b>Representative Learning Goals</b>	
<ul style="list-style-type: none"><li>• Summarize defining properties and characteristics of a function of several variables</li><li>• Find partial and higher-order partial derivatives</li><li>• Use partial derivatives to analyze properties of a function of several variables</li><li>• Use partial derivatives to solve constrained optimization problems</li></ul>	

<b>Assessments - Classroom-Based</b>
Quizzes & Chapter tests, WebAssign (electronic) assignments, Classwork: Checks for understanding; activities & applications, Midterm & Final Exams

<b>Standards</b>
<a href="#">University of Pittsburgh Math 0120 (Business Calculus) Course Outline</a> <a href="#">Standards for Mathematical Practice</a> <a href="#">PA Mathematics Standards</a>