

AP Calculus

MAC 2311

Teachers Randal A. Stowers		Description of Average Weekly Outside Requirements	
Main Topics	Rationale		
Limits and Continuity Differentiation Applications of Differentiation Integration/Antidifferentiation Differential Equations/Slope Fields *Sequence and Series *Methods of Integration (additional) *Misc. minor additional topics	This course is equivalent to the curriculum in college Calculus 1 (or Calculus 1 and 2 in the BC course). Calculus is a required course for many college majors. This course covers material that will be used in college level courses from Business to Sciences to Engineering.	Students will be responsible for material from the textbook, and should expect to spend a minimum of an hour a day doing assignments outside of class time. Students will spend a majority of the time in class covering concepts and working example problems. Some of the time in class will also involve analyzing past test material in both multiple choice and FRQ format. Realistic word problems and labs are designed to make practical application of material to real world situation	
Grade Composition (Approximate) ~70% Test / quiz ~20% Classwork/Projects ~10% Homework	Skill Development (What skills are developed in this course and how?) Students will develop math and communication skills. Concepts will be covered in methods emphasizing an understanding of the concepts on a graphical, analytical, verbal, and numerical level. Graphing calculators will be used in varying degrees on every concept to help solve problems, interpret results, and support various conclusions. Written expression of understanding of concepts will also be stressed to explain an understanding of the concepts in problems. Answers in written form will be assessed and vary from sentences to paragraphs in length.	Sample Problem Excerpts: 1. Find the absolute maximum value of $f(x) = 2x^3 + 3x^2 - 12x + 1$ on the interval $[-1, 2]$ 2. A spherical smiley face balloon is leaking air (and yet, it is still not sad) at a rate of 2 cubic centimeters per minute. How fast is the radius decreasing in centimeters per minute when the radius is 5 centimeters? 3. Find the particular solution, $f(x)$, to the differential equation $f''(x) = 6x$, given that the tangent line to the original equation $f(x)$, has a slope of $-\frac{1}{5}$ as it passes through the point $(0, 13)$. 4. Find the volume of the solid obtained by rotating the region bounded by $y = x^3$, $y = 8$, and $x = 0$ about the y -axis.	
Required Skills Successful background in Geometry, Algebra 2, and Pre-Calculus Prior use of a graphing Calculator is helpful, but not required			