Department of Mathematics
Pomona College

Course Outline
Math 30. Calculus I Fall 2012

Time and Place:	MWF 11:00 am - 11:50 am, Millikan 218
Instructor:	Dr. Adolfo J. Rumbos
Office:	Andrew 259
Phone/e-mail:	ext. 18713 / arumbos@pomona.edu
Office Hours:	MWF 8:45 am - 9:45 am, or by appointment
Text:	*The Calculus Primer* by William L. Schaaf; Dover
Course Website	**http://pages.pomona.edu/~ajr04747/**
Prerequisite:	Placement Exam

Course Description. This course is an introduction to integral and differential Calculus. No previous knowledge of Calculus will be assumed. However, a good working knowledge of algebra and elementary functions are essential for a successful enjoyment of the course. There are three major goals in this course: (1) the acquisition of a thorough understanding of the concepts and ideas of integral and differential Calculus; (2) the development of an appreciation for the power of Calculus in solving real world problems, and the mastery of several of the tools from Calculus that are very useful in applications; (3) the improvement of formal reasoning and problem solving skills. Various applications will be used to motivate the concepts and as a source of interesting problems. The topics for the course are listed in the attached tentative schedule of lectures and examinations.

Assigned Readings and Problems. The lectures are not a substitute for studying the text and working the assigned problems. Problem sets will be assigned after every lecture, and collected on an alternate basis. Students are strongly encouraged to work on every assigned problem. **No late homework will be accepted**.

Grading Policy. Grades will be based on the homework, three 50-minute examinations, plus a comprehensive final examination. The grades will be computed as follows:

homework	20%	
three 50-minute exams		50%
final examination	30%	

Final Examination.
Time: Tuesday, December 18 9:00 am - 12:00 noon.
Place: Millikan 218

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Tentative Schedule of Topics, Presentations and Examinations

Date		Topic
W	Sep 5	Introductory Example: Recovering a function from its rate of change
F	Sep 7	Recovering a quantity from its rate of change
M	Sep 10	Recovering a quantity from its rate of change (continued)
W	Sep 12	Recovering a quantity from its rate of change (continued)
F	Sep 14	Continuous compounding and the concept of limit
M	Sep 17	Limit of sequences
W	Sep 19	Limit of functions
F	Sep 21	Limits (continued)
M	Sep 24	Continuous functions
W	Sep 26	Continuous functions (continued)
F	Sep 28	Discontinuous functions and types of discontinuity
M	Oct 1	Problems
W	Oct 3	Review
F	Oct 5	**Exam 1**
M	Oct 8	The area function
W	Oct 10	Instantaneous rates of change
F	Oct 12	Rates of change (continued)
M	Oct 15	The tangent line to the graph of a function
W	Oct 17	Approximating functions by linear functions
F	Oct 19	The derivative
M	Oct 22	*Fall Recess*
W	Oct 24	The derivative as a rate of change
F	Oct 26	The concept of differentiability
M	Oct 29	On differentiable functions
W	Oct 31	Differentiability
F	Nov 2	Derivatives of compositions
M	Nov 5	Review
W	Nov 7	**Exam 2**
F	Nov 9	Properties of derivatives
M	Nov 12	Applications of the derivative
W	Nov 14	Applications of the derivative (continued)
F	Nov 16	The Fundamental Theorem of Calculus

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Date			**Topic**
M	Nov	19	The Fundamental Theorem of Calculus (continued)
W	Nov	21	Applications of the integral calculus
F	Nov	23	*Thanksgiving Recess*
M	Nov	26	Applications of the integral calculus (continued)
W	Nov	28	Predicting growth from rates of change
F	Nov	30	Predicting growth from rates of change (continued)
M	Dec	3	Problems
W	Dec	5	Review
F	Dec	7	**Exam 3**
M	Dec	10	Review
W	Dec	12	Review
T	Dec	18	**Final Examination**