0206-110-01 Calculus and Analytic Geometry II (4-units) Fall 2005

Synopsis:

This is the second in a three-semester course-sequence (Math 109-110-211) covering standard topics in introductory calculus for college undergraduates. It assumes that a student is familiar with rules for computing derivatives of algebraic, trigonometric, exponential and logarithmic functions, and has used these in solving problems involving optimization, curve-sketching, and computing rates-of-change. It also assumes that a student has been introduced to the concepts of definite integral and anti-derivative, and is aware of the so-called *Fundamental Theorem of Calculus* which describes the connection between derivatives and integrals. With that essential background as a starting point, this course explores applications of the integral to problems in a variety of disciplines, methods for discovering anti-derivatives, techniques for formulating and solving differential equations, usage of parametric equations and polar coordinates, and properties of infinite sequences and series. The course will consist of readings, lectures, discussions, demonstrations, quizes, and homework exercise-sets.

Textbook:

James Stewart, *Single Variable Calculus: Early Transcendentals (5th Ed),* Thompson-Brooks/Cole, Inc. (2003), ISBN 0-534-39330-6

Chapter Six	Applications of Integration (sections 6.3-6.5)
Chapter Seven	Techniques of Integration
Chapter Eight	Further Applications of Integration
Chapter Nine	Differential Equations
Chapter Ten	Parametric Equations and Polar Coordinates
Chapter Eleven	Infinite Sequences and Series

Learning Outcomes:

- You will know how to compute areas and volumes for curvilinear regions.
- You will be aware of common techniques for discovering anti-derivatives.
- You will be able to compute the general solution to a differential equation.
- You will understand how calculus is used in various scientific disciplines.
- You will gain a deeper appreciation for limits and for infinite processes.
- You will be equipped to undertake further studies in college mathematics.

Instructor:

Dr. Allan B. Cruse, Professor of Mathematics and Computer Science
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Exam Dates:

Midterm Exam I will be Monday, September 26.
Midterm Exam II will be Monday, October 24.
Midterm Exam III will be Monday, November 21.
Final Exam will be Tuesday, December 13 (NOON)

Grading scheme:

Homework&Class Participation	25%
Midterm Exams (3)	45%
Final Examination	30%

Homework submissions:

Written homework normally is assigned at each class meeting, to be turned in at the beginning of the next class meeting.
[Please use standard-sized paper (i.e., 8-1/2 by 11 inches), fold your homework paper vertically, and at the top of the outside front page write your name, the course-number (Math 110), and the due-date for that assignment. Thank you.]

Note: To expedite the process of reading, correcting, recording and returning homework papers, a policy of not receiving any late submissions will be followed. (However, to make some allowance for emergencies, the lowest ten-percent of each student's homework-scores will be disregarded when computing the grade.)