

MAT 212-Calculus and Analytic Geometry II, Spring 2009

I. Basic Information

4 hours credit

Prerequisites: MAT 211

II. Course Professor

Professor: Dr. Troy Riggs

Office: C-57

Phone: 661-5257

Email: triggs@uu.edu

Office Hours: TBA

III. Course Description & Objectives

This course continues the calculus sequence. The successful student will be able to evaluate a large class of definite and indefinite integrals using variable substitutions and other integration techniques, and successfully apply these techniques to physical and geometrical problems. In addition, the student should be familiar with the exponential and logarithmic functions, their uses, and related transcendental functions. The computer algebra system *Mathematica* will be used as a tool for visualizing and solving problems encountered in the course.

IV. Method of Instruction

Lecture/discussion will be the primary methods of instruction, along with a laboratory component where students will work on assignments using the CAS *Mathematica*.

V. Text & Technology

Thomas' Calculus, 11th Ed., Weir, Hass Giordano, Addison Wesley. A hand-held calculator with trigonometric and logarithmic functions is also required. A graphing calculator such as a TI-83 or a scientific calculator such as the TI-30X IIS is recommended.

Minicomputers such as the TI-89, TI-92 and Voyage 200 are not permitted. The instructor reserves the right to clear the calculator memory before quizzes or tests. The use of cell phones, head phones and similar technology during class is not permitted. You may make audio recordings of lectures, if you desire.

VI. ADA Compliance

In compliance with the Americans with Disabilities Act, appropriate accommodations will be made to meet documented student needs. It may also be advisable for the professor to schedule help sessions with himself and/or other tutors. Please inform the professor about your individual needs immediately following the first class meeting.

VII. Method of Evaluation

A student's course grade will be based on selected textbook problems, Mathematica labs and quizzes (100 points total), four chapter tests (350 points total), and the comprehensive final exam (150 points). One of the scores will be dropped in the grade calculation for this written work. Late work will not be accepted. A comprehensive final exam will be given according to the university's exam schedule, and this exam will count for 150 points. Additionally, a penalty will be assessed for not meeting the requirements listed in Section VIII, below. Grades will be determined according to the scale: A-90% (excellent), B-80% (good), C-70% (satisfactory), D-60% (less than satisfactory), F-below 60% (failure).

VIII. Attendance & Participation

Regular attendance and class participation is expected of all students. Any student who misses class an excessive number of times will be reported to the Academic Center. Please note that all students are expected to be on time for class.

Periodically, students will be called on to put a problem from the last textbook assignment up on the board. Each student is expected to successfully put up at least 8 problems during the course (no more than one per day). If a student fails to meet this requirement, then $\frac{1}{2}$ of a letter grade will be deducted from the student's final course grade.

Any student who misses a chapter test must bring a written explanation of the reason for the absence and supporting documents (for example, a note from a physician). Make-up exams are at the professor's discretion. If you anticipate a serious conflict with a chapter test, let me know well in advance.

IX. Statement on Cheating and Plagiarism

No forms of cheating will be tolerated. If the professor observes cheating by a student during an exam, the student will receive a grade of zero for that exam and a report will be sent to the offices of the Dean of the College of Arts and Sciences and the Provost.

X. Course Outline

- A. Review of Integration Basics and Numerical Integration—Chapter 5 and Section 8.7
- B. Applications of Definite Integrals—Chapter 6
- C. Transcendental Functions and their Applications—Chapter 7
- D. Techniques of Integration—Chapter 8
- E. Polar Coordinates—Chapter 10

XI. Showing Work

Answers without arguments are mere opinion. You must show your work to receive full credit. If your answer is incorrect you will receive partial credit based on the work shown.