

Mathematics 326A

Autumn 2008

Instructor: John Palmieri, Padelford C-538, 543-1785, palmieri@math.washington.edu

Class time and place: MWF 12:30, Loew 113

Office hours: Wednesday 1:30–2:20, drop in, and by appointment. (I should be available most MWF mornings, roughly 10:00–12:00, and I usually have some time on Tuesdays. I'm not available on Thursdays.)

Web page: <http://www.math.washington.edu/~palmieri/Math326/> or
<http://faculty.washington.edu/jpalmier/Math326/>

Text book: *Advanced Calculus*, 3rd edition, by Angus E. Taylor and W. Robert Mann.

Goals. The main goal for this class is to learn some mathematics – see below for details. To achieve this, you will need to engage in precise mathematical thinking: you will need to think like a mathematician. A second goal, then, is to help you learn to think this way.

Class structure. This is a lecture-based course.

Homework. I will assign homework weekly; see the course web page for the assignments. Homework will be due **each Wednesday** at 3:30pm in my office, Padelford C-538. You may turn it in early, for example in class on Wednesday.

One of the best ways to learn the material in this course is to do the homework problems. Struggling with a problem is perfectly normal; in fact, it's actually helpful, because it will force you to come to grips with the underlying mathematics. Being able to follow someone else's reasoning on a problem is not at all the same as being able to solve it yourself. You learn a lot more by solving it yourself.

Having said this, the homework policy for this class is: you may work with other people on your homework, but you must write your solutions yourself. If you find a solution in a book or some other source, please provide a reference. (But you will learn more if you don't rely too much on your classmates or outside references. I strongly encourage you to try the problems on your own, at least to some extent.)

Exams. We will have a midterm in class on **October 20** and a take-home midterm some time around **November 12**. After I've graded the first midterm, you will have a few days to correct some of your mistakes for some extra credit. I'll give you more details as the time approaches. The final exam is on **December 11, 8:30–10:20am**.

Grading. The various components of the course are weighted as follows:

midterms	50% (25% each)
final	35%
homework	15%

The course is not graded on a curve, except for this: if your score on the final is less than 50% of the class median, I reserve the right to assign you a grade below 2.0, regardless of the rest of your scores for the quarter.

The mathematics. The purpose of this course is to develop multivariate calculus. We will discuss continuity, partial derivatives, and related issues, and then move on to extensions, to several variables, of familiar results from one-variable calculus: the chain rule, max-min problems, the mean value theorem, Taylor series, etc. We will also cover the implicit function theorem and the inverse function theorem, two results which guarantee the existence of certain kinds of functions.

In terms of the textbook, this means we will be covering most of chapters 5–9, plus a little bit from chapter 15 at the end of the quarter.

Much of the material is abstract, and you will have to pay attention to things like the precise hypotheses for theorems. I will not require you to produce detailed proofs – that is for courses like Math 310, 327, and 424 – but to succeed in this course you will need to start learning to think in a mathematically rigorous way.