Calculus and Analytic Geometry II	Instructor:	Martin Jackson
MATH 122B	Office:	Thompson 602
Fall 2005	Phone:	879-3567
MWTF 10:00–10:50 Thompson 318	E-mail:	martinj@ups.edu

Course Overview and Text

This course is the second in the three-semester calculus sequence. After successfully completing this course, a student should be able to

- understand the basic ideas of calculus including limit, continuity, derivative, and integral;
- perform relevant calculus computations efficiently and accurately; and
- use the ideas and techniques of calculus in applications.

A detailed list of specific objectives will be available on the course web page. In addition, a student completing this course should improve critical thinking and logical reasoning skills along with gaining proficiency in reading and writing technical material.

We start with a quick review of some topics from the first semester calculus course, including *limits*, *continuity*, and *derivative*. The main topic of this course is *integration*. We will look at the definition of *definite integral* as the limit of a sum, at *antideriviatives*, and the connections between these in the *Fundamental Theorems of Calculus*. We will spend considerable time on computational techniques and applications related to these ideas. The last part of the course will focus on *sequences* and *series*.

The text for this course is *Calculus*, 3rd ed., Monty J. Strauss, Gerald L. Bradley and Karl J. Smith, (Prentice-Hall, 2002). We will cover the material in Chapters 5 through 8.

You will also need a calculator with the following capabilities: function graphing, numerical equation solving, numerical differentiation, and numerical integration. Among Texas Instrument calcuations, the TI-83, TI-84, TI-86, and TI-89 models have these features. Note that for some exams, I may forbid the use of symbolic computing features on calculators such as the TI-89.

Course Web Page

A web site for this course is located at

    `www.math.ups.edu/~martinj/courses/fall2005/m122/m122.html`

or go to `www.math.ups.edu/~martinj` and follow the obvious links. The web site will have a list of assignments and due dates. I will also post announcements and comments about questions or issues that come up in class. You should check the web site for new announcements several times each week. Class handouts will be available to download as PDF files.

Grading, Coursework, and Policies

In class, we will discuss new material, respond to questions from reading the text,

and work through assigned problems on which there are difficulties. When we discuss new material, the focus will be on "the big picture." That is, we will look at new ideas in their simplest form and how these ideas fit together. Often, we will not consider details and variations in depth during a first pass through new material. Your mastery of the details will begin outside of class with a careful reading of the text and work on the assigned problems. We will address the details by responding to questions on the reading and problems that you bring to class. You are expected to participate in class by being present (and alert), by responding to questions I pose, and by asking the questions that you have. I will often ask for ideas on how to proceed in a given problem or in developing a new concept. You should develop the habit of contributing ideas even if you are not confident your idea will work out.

Outside of class, you should read the relevant sections of the text carefully. This will generally include working through the reasoning of arguments and filling in steps that are omitted in calculations. You should keep a list of specific questions from the reading and find answers to those questions either in class, with me outside of class, with study partners, or with a tutor.

The text is also a source of problems that are essential in building understanding and skill. I will assign homework problems from the textbook on which I expect you to spend considerable time and effort. For most sections we cover, I will also designate several problems to be collected and evaluated. You should not get in the habit of focusing only on the problems designated to be turned in. You will need to do many more problems in order to become facile with the concepts, techniques, and applications. The typical schedule for homework will be to get a new assignment one class meeting, address questions from that assignment in the following class meeting, and have a due date on the class meeting following that.

Projects will be second type of assignment to be completed outside of class. The purpose of projects is to present challenges, often open-ended, that go beyond the routine of homework problems and to provide practice in technical writing. For each project, you will compose a written report. This should be done in complete sentences with enough detail for a reader to follow your reasoning and reconstruct your work. All graphs should be done on graph paper or with appropriate computer assistance. I encourage you to work on these projects in small groups. If you do work on a project with others, you must do your own write up of the results.

Each problem set and project will have a due date. If you wish to turn an assignment in late, you must talk with me before the due date. Under reasonable circumstances, I will grant individual extensions for deadlines. If you submit an assignment after a deadline (or an extension we have agreed upon), I will assess a penalty equal to 10% of the assignment's maximum point value for each working day that the assignment is late.

In order to assess your learning, we will have four exams and a final exam. Most exams will be scheduled on a Thursday in order to take advantage of the 80 minute time block that should be available. Tentative dates for exams are

Thursday, September 15	Thursday, October 13
Thursday, November 10	Wednesday, December 7

I write exams so that approximately three-fourths of each exam is "straightforward" and the remainder involves more challenging problems. By this, I intend that a well-prepared student can do the "straightforward" problems without hesitation but will often or always struggle with the challenging problems.

The final exam will be comprehensive. It is scheduled for 8:00-10:00 am on Friday, December 16. It is University policy that no exceptions can be made for taking a final exam at the scheduled time. Please do not make travel arrangements that conflict with the scheduled final exam time.

To determine course grades, I calculate a total course score according to the following weights:

Homework	15%
Projects	10%
Exams	60%
Final exam	15%

I assign a preliminary course grade based on an objective standard (93.3-100% for an A, 90.0-93.2% for an A−, 86.7-89.9% for a B+, 83.3-86.6% for a B, etc.). I then look at each student's performance subjectively. Occasionally I will assign a course grade that is higher than the objective standard. For example, if a student has a grade of B according to the objective standard but has shown steady improvement, I might assign a course grade of B+.

Office Hours

I am generally available in my office for help several hours each day. I am often in my office during the day in hours at which I do not have a scheduled class, meeting, or other activity. You can see my weekly schedule at

<div align="center">www.math.ups.edu/~martinj/schedule.html</div>

Feel free to come look for me. To be (almost) guaranteed that I will be in, come during one of the hours labeled as an "office hour." You can also call, send e-mail, or stop me after class to schedule an appointment for a specific time.

Important Dates for Fall 2005

Tuesday, September 6	Last day to add a course
Monday, September 12	Last day to drop a course without record
Monday, September 26	Last day to drop a course with an automatic W

Note that University policy mandates a grade of WF if you drop a course after Monday, September 26 unless "there have been unusual circumstances beyond the student's control and the student's work has been of passing quality." For full details, see the Academic Policies section of *The Logger*.