MATH 1220
TuTh 9:30 - 10:45 PM, Room: Clark Hall 102

Instructor: Eloísa Pires **Office:** Kerchoff 401 **e-mail:** er2eq@virginia.edu

Office Hours: Tuesdays 11–12:30, Wednesdays 10:30–12, and by appointment.

Prerequisites: MATH 1210 or a similar class. There may be some review of old material, but you are expected to be comfortable with taking limits and derivaties, exponential and logarithmic functions, and the basics of integration.

Course Description: Math 1220 is a second calculus course for business, biology, and social-science students. Math 1220 is a coordinated course, which means that all sections cover the same material and take the same tests.

Because this is a second course in calculus, you already know that calculus provides two fundamental tools for analyzing functions: the derivative and the definite integral. In this course, you will be using calculus to analyze trigonometric functions, probability density functions, functions depending on two variables, and functions defined by power series. You will also be introduced to mathematical modeling with differential equations, learning two techniques for solving such equations.

Grade Policy: 20% each midterm, 30% final, 10% quizzes, 10% for WebAssign, 10% for written homework.

Midterms: Midterms and exams in Math 1220 are common among all sections, so rescheduling is not an option. For those students who have a time conflict with another course, a make-up exam will be given the following morning beginning at 7:20 am. If you have a direct conflict with either of the above listed exam times, please notify me as soon as possible; in any case, you must let me know a week before the exam date. If proper notice cannot be given, then a request for the make-up exam will be honored only in cases of extreme emergencies and at my discretion.

Final: The final exam will be given Thursday, December 10th, from 7:00 pm to 10:00 pm. This is the time reserved for the MATH 1220 final exam by the University and all sections of MATH 1220 take the common final examination at the same time. Note that per University policy, the date and time of the final exam may not be changed without the proper paperwork from the Deans Office. It is University policy that final exams may not be taken early. The final exam is comprehensive.

Midterms and Final Exam Schedule:

First Test	Wednesday, September 30	7–8:30 PM
Second Test	Thursday, November 12	7–8:30 PM
Final	Thursday, December 10	7–10 PM

Textbook: Applied Calculus for the Managerial, Life, and Social Sciences by Soo T. Tan, 9th edition (Publisher: Brooks/Cole Cengage Learning).

An electronic edition of the text is provided through WebAssign, to which you must purchase access. Acquisition of a physical copy of the text is optional. You have a number of different purchase options, but first you should know the following:

There is a two-week grace period at the beginning of the semester during which you have free WebAssign access – go to `http://www.webassign.net/uva/login.html`, and enter our class key: virginia 2858 5705.

If you do not want a physical copy of the textbook, the least-cost option is to purchase WebAssign (which includes the Tan Ebook) directly through WebAssign, after establishing your account during the grace period youll be presented with a purchase option when you log in. Alternatively, you can purchase a WebAssign + Ebook access-card from the UVA Bookstore.

Homework: There will be weekly homework on WebAssign, starting on September 2. Homework is due every Wednesday at midnight. Late work is not accepted, but one WebAssign homework grade will be dropped at the end of the semester. There will also be written homeworks: one before the first midterm, one before the second and possibly one before the final. Collaboration between students on these assignments is not only allowed but encouraged, as is discussing the problems with me in my office hours. You are, however, required to write up your own solutions by yourself on the written homeworks.

Diagnostic Quiz: At the end of the second week (Thursday, Sept 3), there will be a quiz (15 minutes) consisting of problems designed to test your basic math/calculus skills.

Quizzes: There will be quizzes done in class. Each quiz will be graded on a scale of 0 to 10, and last for 15 minutes, usually at the end of the class. There will be absolutely no make-up quizzes, but I will drop the lowest two scores (excluding the score on the Diagnostic quiz, which will not be dropped).

Calculators: Calculators are not allowed for any quiz, exam, or the final. Thus, as much as possible, try to complete homework problems without using a calculator. For some WebAssign homework problems, you will find a calculator or Wolfram Alpha to be helpful.

Extra Help: Do not hesitate to come to my office during office hours or by appointment to discuss a homework problem or any aspect of the course. If my office hours conflict with your schedule, please email me and we can set up a meeting. You are responsible for any announcements made in class, and any email that I send to your UVA email account.

You also may want to consider the Math Tutoring center, which is a free resource with specific times targeted to different courses. See `http://people.virginia.edu/$\sim$psb7p/MTCsch.html`.

Academic Honesty: As a University of Virginia student, you are required to abide by the Honor Code.

Final Grades:

[98, 100]	A+	[83, 87)	B	[70, 73)	C-
[93, 98)	A	[80. 83)	B-	[67, 70)	D+
[90, 93)	A-	[77, 80)	C+	[63, 67)	D
[87, 90)	B+	[73, 77)	C	[60, 63)	D

Important Dates:

Classes Start ..... Tuesday, August 25
Add Deadline ..... Tuesday, September 8
Drop Deadline ..... Wednesday, September 9
Withdraw Deadline ..... Tuesday, October 20
Reading days ..... Saturday, October 3 to Tuesday, October 6
First Test ..... Wednesday, September 30
Second Test ..... Thursday, November 12
Final ..... Thursday, December 10
Classes end ..... Tuesday, December 8

How to do well in this class:

Attend all the lectures. I will not take attendance into consideration towards your grade, but showing up to every class is the best way to learn the material. Use class time wisely: fully engage yourself in classroom discussions, asking and answering questions when appropriate. Take advantage of my office hours. Seek understanding rather than trying to rely on memorized formulas. It is nearly impossible to understand mathematics without working problems yourself, so work on all the homework problems as well as possible. This will not only improve your grades, but also solidify your understanding of the course material and better prepare you for the tests. Use the resources available to you. The Math Tutoring Center offers free tutoring: use it. Keep up with the class, even if the material is familiar, it can quickly change into something new.

Learning Needs: All students with special needs requiring accommodations should present the appropriate paperwork from the Student Disability Access Center (SDAC). It is the students responsibility to present this paperwork in a timely fashion and follow up with the instructor about the accommodations being offered. Accommodations for test-taking (e.g., extended time) should be arranged at least 5 business days before an exam.

Am I in the right class?: Read the Mathematics Departments Placement Information:
`http://www.math.virginia.edu/content/math-placement`.

Course Objectives:

(1) be able to compute or estimate values of the sine and cosine functions using their definitions and be able to apply the tools of calculus to analyze trigonometric function;

(2) be able to set up integral formulas to solve applied problems;

(3) be able to analyze functions of two variables through their graphs, which are typically surfaces in three-dimensional space, as well as through partial derivatives and double integrals;

(4) be able to solve separable first-order differential equations exactly and be able to solve initial-value problems for first-order equations approximately via Euler's method;

(5) know how to use the probability-density function for a continuous random variable X to compute associated probabilities as well as the expected value, variance, and standard deviation of X;

(6) develop intuition concerning when a series of real numbers converges and be able to confirm or refute that intuition by applying an appropriate test for convergence/divergence;

(7) be able to use power series to define new functions as well as represent famous old functions such as $f(x) = e^x$, $f(x) = \sin(x)$ and $f(x) = \cos(x)$;

(8) have further developed their problem-solving skills and strategies through modeling and solving a wide variety of problems, including some with real-world applications;

(9) be able to communicate mathematics with clarity and precision.