Mathematics 25a - Fall 1999
Honors Advanced Calculus and Linear Algebra

Time and Place: MWF 11-12, Science Center E.

Instructor: Kalle Karu.
Office: 432 Science Center.
Phone: 495-8796.
E-mail: kkaru@math.harvard.edu.
Office hours: Wed 2-3:30, Th 3-5. You are also welcome to stop by any time I am in my office.

Textbook: *Vector Calculus, Linear Algebra, and Differential Forms* by John Hubbard and Barbara Hubbard.

Course description. The goal of Math 25 is to give a rigorous treatment of linear algebra and multivariable calculus. We start with a quick review of single variable calculus, and then more or less follow the book. The plan is to cover Chapters 1-3 and at least a part of Chapter 4 in the Fall semester.

Sections. There will be four sections, held on a weekly basis. The section leaders are:

Mihaela Enachescu, menaches@fas.harvard.edu

Harish Bhat, bhat@fas.harvard.edu

Jared Weinstein, jsweinst@fas.harvard.edu

Yu Yasufuku, yasufuku@fas.harvard.edu

Homework. Weekly homework assignments will be handed out each Friday, and they are due the following Friday. Homeworks may be turned in to the course mailbox outside the math office at 325 Science Center any time before 5PM on Friday. They will be returned hopefully by the end of the following week. Late homework will be accepted only in exceptional circumstances and with prior approval.

Exams and Grading. There will be three midterm and one final exam. The dates and formats are as follows:

Oct 20, Wed, in-class midterm exam;

Nov 19, Fri, take-home midterm exam due 5PM;

Dec 15, Wed, in-class midterm exam;

Jan 14, Fri, take-home final exam due 5PM.

Each exam counts for approximately $\frac{1}{6}$ towards your final grade, and the homework counts for $\frac{1}{3}$:

$$\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{3}=1.$$

Collaboration. Working with others on your homework assignment is strongly encouraged. However, you have to write up your solutions by yourself. Collaborating on exams (take-home or in-class) is not permitted.

Supplementary textbooks. Math 25 covers a wide range of topics: linear algebra and multivariable calculus are the main ones, but we also study topological spaces, metric spaces, real analysis and other topics. In case you want to learn more about these subjects than is covered in the textbook, here is a sample of excellent books:

Linear algebra: *Linear Algebra Done Right* by S. Axler.

Analysis: *Principles of Mathematical Analysis* by W. Rudin.

Topology: *Basic Topology* by M. A. Armstrong.