

**Mathematics V1208y**  
**Honors Mathematics B**  
**Fall 2010**

**Instructor:** Prof. Michael Thaddeus    **Classroom:** Mathematics 203  
**Office:** Mathematics 414                **Lectures:** M.W. 2:40–3:55 pm  
**Office hours:** W. 4-6 pm, or by appointment.

**Prerequisite:** Honors Mathematics A, or the instructor's permission.

**Required texts:** Tom M. Apostol, *Calculus*, volume II (Wiley). Reading and written assignments will be drawn from this text. The first two chapters of volume II can also be found at the end of volume I. Available from Columbia University Bookstore.

**Course description:** A rigorous account of linear algebra (matrices, determinants, orthogonality, eigenvectors, spectral theorem) and multivariable calculus (partial and total derivatives, multiple, line, and surface integrals, theorems of Green, Gauss, and Stokes). Covered by chapters 1–5, 8, and 10–12 of Apostol, volume II. Includes the essential content of Calculus III (Mathematics V1201), Calculus IV (Mathematics V1202), and Linear Algebra (Mathematics V2010).

**Assignments:** Assignments will be posted on the course home page. You can learn as much from your fellow students as from lectures, so I encourage you to discuss the problems with each other, subject to the following ground rules: (1) make a serious effort to think through each question for yourself first; (2) list the names of all collaborators at the head of each assignment; (3) do not exchange any written work with others; (4) write up every problem in your own words.

Assignments are due on Fridays at 5 pm in the new collection box across from 410 Mathematics. The use of a staple or paper clip and the submission of all problems together (not piecemeal) is absolutely, positively, utterly compulsory. Late assignments will be penalized by 10% of their point value for each day they are late. Warning: the building may be locked outside of library hours.

Each assignment will also include some supplementary problems which are not to be handed in. You are expected to do these, but when you do them is up to you. For example, they might make good preparation the week before an exam.

**Reading:** Each homework will include 40 to 50 pages of reading in Apostol. Most of this will duplicate the lectures, but be warned that not everything in the reading will be covered in the lectures, or vice versa. In principle, you are responsible for both.

**Recitation:** There will be a one hour recitation section each week, led by the teaching assistant, Andrew Fanoë ([afano@math.columbia.edu](mailto:afano@math.columbia.edu)), at a time to be arranged.

**Exams:** The midterm will be in class Wednesday, March 10 (to be confirmed). There will not normally be a makeup exam for the midterm; instead, you may be given an oral exam covering the same material. The final exam is scheduled for Wednesday, May 12, 1:10–4 pm. If you foresee conflicts, such as a religious holiday, with either exam let me know immediately. You can be excused from an exam only in a medical or family emergency, documented by a note from your doctor or dean. Also, please make your travel plans for the summer vacation early, as the date of the final exam cannot be moved.

**Grading:** Homework 40%, midterm 22%, final 38%.

**Help Room:** You may wish to take advantage of the Mathematics Help Rooms in 406 Mathematics and 333 Milbank. Teaching assistants are on call for much of the week to help you with any math

problems you may experience. Schedules will be posted shortly: see  
(<http://www.math.columbia.edu/programs/main/one/helprooms.html>).

**Contacting me:** By e-mail at ([thaddeus@math.columbia.edu](mailto:thaddeus@math.columbia.edu)), or, preferably, by telephone at 4-4308. Even better, come to my office hours on Wednesday from 4-6 pm in 414 Mathematics, or knock on my door at any time.

**Course home page:** (<http://www.math.columbia.edu/~thaddeus/honors.html>).