

MATH 425A SYLLABUS SPRING 2013

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Office hours (tentative): MW 2:10 – 3:15, Th 1:15 – 3:00, and by appointment.

Class Meetings: 10:00 – 10:50 MWF in GFS 104 and Tu 2:00 – 3:50 in KAP 166.

Text: *Principles of Mathematical Analysis*, 3rd Ed. by W. Rudin. We will cover a bit of Chapter 1, most of Chapters 2 – 6, and, if time permits, some of Chapter 7.

Grading: The grade on each of the following counts for 25% of the course grade: homework (roughly weekly), each of two midterms (on Tu. Feb 19 and Tu. April 2), and the final exam (Monday, May 13, 8:00 – 10:00AM). The final exam grade may replace half the grade on one of the other three parts. Late homework may be penalized unless approved beforehand by me.

Material of the Course/Goals

The course gives a rigorous presentation, in a more general setting, of some material from Calculus. The purpose of the course is to carefully introduce the basic notions and techniques in analysis, to consider some of the subtleties that arise, and to provide exposure to, and experience with, a careful mathematical development of ideas and results.

General comments/Expectations

This course is typically difficult for students because it introduces new and substantial ideas, and it requires care and precision in the construction of mathematical arguments. Its formal approach may be unfamiliar, but can be mastered with time and practice. I will be available to help you, and I encourage you to come and see me. I will make every effort to accommodate your schedule; I am often available on TTh mornings and on Fridays. The key to success in the course is spending adequate time on the material. This includes *memorizing the definitions and theorems* stated and proved in class: these are *essential*, and having command of them makes it possible to do the problems. Study the class material, *especially* the proofs. The proofs illustrate how the previous results are used, so provide a review of those results, which helps to learn them. Proofs also illustrate the general approaches and techniques used in analysis. The purpose of the problems is to help you learn the material by forcing you to think about and review the relevant definitions, results, and techniques. Since the problems are essentially about the definitions and theorems, they should be attacked having the text and lecture notes at hand. *You will not be able to learn the material and will not do well on the exams unless you work faithfully, yourself, on the homework problems (graded or not).* Obtaining solutions from others or other sources is not permitted and will not prepare you for the exams. The material of the course is likely new to you, and at times complex, so you have to work at learning it; the best way to do that is by *studying the notes and working on the problems*. Exams might ask you for, or about, definitions, theorems, proofs, or homework problems.

Both homework and exam problems are based on the material as it is presented in class, so it is extremely important for you to attend the lectures. Students who do not attend class regularly usually do not perform well on exams. You are responsible for the material presented in the lecture, given as handouts, or assigned in class.

Academic Integrity Statement

All graded material is to be your work alone without help from or consultation with anyone else, or any other source, except for me or the TA. Notes, books, or communication with others are not allowed during exams. Violation of this is a VERY serious offense.

Advice

I encourage you to see me (often!) if you need clarifications or help of any kind, particularly with the homework problems. Being meticulous in providing references for definitions and theorems that you use in solving problems will help you to do problems correctly and to learn the material; rambling arguments without *specific citation* of definitions and theorems for justification are usually incorrect.

Typically I do not deal with e-mail at home, so contacting me in that way in the evenings or weekends will not result in a reply until after I return to campus.