

Math 4417 Information



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Office Hours: Thursdays 1:30-2:30 (I will also usually be around at the same time on Tuesday, and feel free to stop by anytime and see if I am free or arrange an appointment via e-mail).

Lectures: Tuesday-Thursday 12:00-1:30 in Skiles 170

Course Content

This is the first course in a two part introduction to real analysis, that is the study of functions in Euclidean space. The official departmental syllabus for this course can be found at

[Analysis I – Math 4317](#)

In brief, we will cover properties of the real numbers necessary to "do analysis", discuss the "topology" of Euclidean spaces (in other words, rigorously discuss issues like the convergence of sequences and continuous functions) and really come to grips with continuous functions and sequences and series of continuous functions. If time permits at the end of the course we will begin studying differentiation and integration of functions of a single variable. The second analysis course (Math 4318) will more fully study differentiation and integration in a single variable and also of many variables).

This course is also typically the second course one takes involving proofs. So the lectures, homeworks and exams will involve quite a lot of proofs. The reason for this is that we do not just want to learn properties of continuous functions, or how to take a derivative of a function, but **why** these properties and computational techniques are true. This will allow you to better understand when you can and cannot do something you "learned" in calculus. It will also allow you to expand what you currently know about calculus into other situations. In any event, it is assumed that you are somewhat familiar with proofs, basic set theory and formal logic, but at the beginning of the course we will give a brief review of some of these topics. You might also find the following links useful:

- [Notes on proof writing](#) by Christopher Heil,
- [Notes on logic](#) by Terence Tao,
- [Notes on set theory](#) by Terence Tao.

Textbook

The required text for this course is

- ***The Elements of Real Analysis* by Robert G. Bartle (2nd edition).**

I will try to make the lectures fairly self-contained so the main reason you will need the books is as another source for some of the material and, maybe, for the homework problems. (If you would prefer not to buy the book, you can probably get by just copying the relevant problems out of the book when I assign them.)

Grading Policy

The course grade will be based on the following.

Homework: 30%
2 Midterm: 20% each
Final Exam: 30%

Homework Policy

Every week or two I will assign a set of [homework problems](#). The homework sets will be posted by the end of Tuesday in a given week. You should check the homework web page regularly, since I will not always announce when I post an assignment. You will have one or two week to work on the problems (the exact due date will be on the problem set).

Exams

The first exam will be sometime in early October and the second one will be in mid November.

Final Exam is **tentatively** scheduled for Thursday, December 14 from 11:30 till 2:20.

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