Analysis I
MWF 2-2:50pm
CB 347
Spring 2007

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Office hours: M 3–4, Mathskeller
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and by appointment.

Text: *Measure and integral, R. Wheeden and A. Zygmund.*
This course will introduce students to Lebesgue integration. The content of this course will be examined in the real analysis portion of the analysis preliminary examination.

Homework: You should endeavor to write out your homework clearly. Use complete sentences. Give specific references to facts from lecture or the text. It will not be acceptable to give a reference such as "I heard that Nick Kirby said it was true." Note that homework is a substantial fraction of your grade.
The homework will be of two types. Exercises which are more routine and will generally not be collected. Problems will be more interesting and will be collected and graded.
We will schedule two recitation sections where homework exercises will be discussed. Be aware that your instructor is old and cranky. Late homework will not be accepted. You may only write on one side of each sheet of paper. Leave generous margins. I may use the margins and the back of each sheet for comments. I prefer that your solutions be handwritten.

Lecture notes: Students will be asked to prepare lecture notes for the class. Each student will be asked to prepare lecture notes for review by me and then distribution to the class. We will rotate through the class alphabetically. Students are encouraged to take notes for every lecture.

Grading: Your grade will be determined as follows.

Lecture notes	53
Participation in recitation	47
Homework	197
Exam	206
Final	297
Total	800

Exams: There will be one midterm exam and a final. The final will be cumulative. The final exam is at 3:30-5:30 pm on Wednesday, May 2, 2007,
A number of other textbooks cover the material of this course. Three[1] of my favorites are:

[1]This reminds me of a joke: There are three kinds of mathematicians, those who know how to count and those who don't.

- *Lebesgue integration on Euclidean spaces,* BF Jones.
- *Real Analysis*, H. Royden
- *Real and Complex Analysis*, W. Rudin.
- *Inequalities,* Hardy, Littlewood and Polya.
- *Real analysis, measure theory and Hilbert spaces,* E.M. Stein and Rami Shakarchi.
- *Analysis*, E. Lieb and M. Loss.

Schedule: I hope to cover Chapters 1 to 7 of Wheeden and Zygmund. Below is a tentative schedule. It will be amusing to see if we can follow it.

Chapter	Topics	Dates
1	Preliminaries	1/8–1/14
2	Functions of bounded variation and the Riemann–Stieltjes integral	1/16–2/4
3	Lebesgue measure and outer measure	2/6– 2/20
	Exam	2/23 (tentative)
4	Measurable functions	2/25–3/8
5	The Lebesgue integral	3/18–4/1
6	Repeated integration	4/3–4/17
7	Differentiation	4/19–4/27.

January 9, 2007