MA676 Real Analysis I

Spring 2009

Instructor	P. D. Hislop
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Text:	E. Stein and R. Shakarchi: *Real Analysis: Measure theory, integration, and Hilbert spaces*, Princeton: Princeton University Press, 2005.
Class Meetings:	MWF 1:00–1:50PM CB 347
Office Hours:	Hislop: MWF 3-4, and by appointment

Grading Policy

Item	Date	Total Points
Homework		100 points
Hour Exam	6 March (target)-in class	100
Final Exam	4 May-in class 8:00–10:00AM	200
TOTAL		400

The minimum cut-offs for letter grades are: A 360-400; B 320-359; C 280-319. If your final total of all scores is within one of these intervals you are guaranteed to receive the corresponding letter grade or higher. Homework problems will be due approximately every ten days.

Course Content

We will cover the main parts of Chapters 1, 2, and 3. These cover the main, basic results of measure theory, Lebesgue integration theory, including the important convergence theorems, and differentiation theory, especially functions of bounded variation and the Lebesgue differentiation theorem. If time permits, we'll look at Hilbert and Banach spaces. This will be continued in Reals II.

There are other good books that have been used in this course: Wheeden and Zygmund *Measure and integration*, and H. Royden: *Real Analysis*. You can also read in Beals' book, that we used last semester, and look at R. Gariepy, W. Ziemer: *Modern Real Analysis*, Boston: PWS Publishing Co., 1995. One of the peculiarities of our text is the construction of Lebesgue measure directly for R^d, any $d \geq 1$. This introduces a few complications not present when $d = 1$. These two books do the case $d = 1$.

Special Dates

19 January	Martin Luther King, Jr Day - No classes
4 February	Last day to drop with no W
9 March	Midterm of Spring 2009 Semester
16–21 March	Spring Break - No Classes
3 April	Last day to drop with no W
1 May	Last Class
4 May	8-10 AM Final Exam