## MA677 Real Analysis II FALL 2009

Instructor	P. D. Hislop
Office:	753 POT
	257-5637 or hislop@ms.uky.edu
Text:	E. M. Stein and R. Shakarchi: <i>Real Analysis</i> Princeton University Press, 2005.
Class Meetings:	MWF 2:00–2:50AM CB 345
Office Hours:	MWF 3-4, and by appointment
COURSE MATERIAL AND INFORMATION	www.ms.uky.edu/ $\sim$ hislop

## Grading Policy

We will have occasional homework giving 100 points total. Each student will write a short expository paper on a topic chosen in consultation with the instructor, and the and make a class presentation for 100 points. Out of the 200 points total, the minimum cut-offs for letter grades are: A 180-200; B 160-179; C 140-159. If your final total of all scores is within one of these intervals you are guaranteed to receive the corresponding letter grade or higher.

## **Course Content**

This course is a continuation of MA676 Real Analysis I. We will begin with chapter 4 on Hilbert and Banach space theory and move onto Chapter 5 with examples. Along the way, we'll discuss the Fourier series and transform, and solutions to partial differential equations. We'll also study aspects of the theory of linear operators. We will cover sections 1-4 of Chapter 6 on general measure and integration theory. We will discuss the theory of  $L^p$ -spaces and the topics listed below. Each student is to read a research paper, chosen in consultation with the instructor, write a short version of the paper in LaTex or Scientific Word, and make a class presentation.

There are other good books that I recommend:

W. Rudin: Real and Complex Analysis. McGraw-Hill

H. Royden: Real Analysis. Macmillan

R. Gariepy, W. Ziemer: *Modern Real Analysis*, Boston: PWS Publishing Co., 1995.

R. L. Wheeden, A. Zygmund: *Measure and Integration*, New York: Marcel Dekker 1977.

P. D. Hislop and I. M. Sigal: Introduction to spectral theory, Springer, 1996.

## **Special Dates**

7 September	Labor Day - No classes
19 October	Midterm of Fall 2009 Semester
6 November	Last day to withdraw from a course
25–27 November	Thanksgiving Break - No Classes
11 December	Last Class