Course Description

Math 354, Fourier Analysis and its Applications

Dr. Bin Cheng
(bincheng@umich.edu)

Winter, 2008

Times and locations

Class meeting:	M,W&F (10-11am) @ 1372 EH
Office hours:	M,W&Th (11-12am) @ 4839 EH
Homework due:	W (biweekly)
Midterms:	W, Feb 6 (10-11am) & W, March 19 (10-11am)
Final exam:	M, Apr 21 (4-6pm)

Textbook

Fourier Analysis and its Applications, by Gerald Folland

Website

http://www.umich.edu/~bincheng/Math354W2008/

Prerequisite

Math 216, 256, 286 or 316
Substantial background on Calculus and Differential Equations

Grades

Total	Homework	Attendance	Midterm I	Midterm II	Final
100%	25%	15%	15%	15%	30%

Timeline (and a glimpse at the text)

Week 0-4	Chapter 1	Introduction
	Chapter 2	We will focus on properties of Fourier **series** (S. 2.1—2.4) and then move on to applications to some simple yet fundamental PDEs (S. 2.5).
	Chapter 4*	More (selective) examples of PDEs.
Feb 06	**Midterm I**	10-11am
Week 5-9	Chapter 3	Orthogonal sets of functions serve as the theoretical foundation for a much greater family of analytical tools.
	Chapter 5* & 6*	(Selective) examples of orthogonal bases. Wavelets (S. 6.6).
Mar 19	**Midterm II**	10-11am
Week 10-13	Chapter 7	Continuous and discrete Fourier **transform**. FFT (S. 7.6).
	Matlab, etc	We will apply the above ideas to areas such as signal/image processing with help of Matlab.
Apr 21	**Final Exam**	4-6pm

Brief notes

Section	Theorem	Formula	Homework	Remark