

Math 110c
Topics in Real and Harmonic Analysis
Spring 2006
Course Information

Instructor: Malabika Pramanik

Office: 360 Sloan Hall

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Lectures: MWF 1 - 2 pm in 151 Sloan.

Office hours: MW 2 - 3 p.m. (starting April 12) or by appointment.

Course webpage: <http://www.its.caltech.edu/~malabika/teaching/110c-spring2006/index.html>

Grader : Tonci Crmaric

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Course Description: Math 110c is the last of the three courses in the 110 sequence and is devoted to real and harmonic analysis. Topics to be covered include : integral and convolution operators, L^p estimates, generalized functions, Sobolev spaces, Fourier analysis of periodic functions, harmonic analysis in \mathbb{R}^d , convergence of Fourier series and integrals, harmonic functions on the unit disk, boundary values of harmonic functions, singular integrals, interpolation theorems.

Text: There is no required textbook for this class. The following is a list of recommended texts.

- *Real Analysis : Modern Techniques and their applications*, by G. B. Folland.
- *An introduction to harmonic analysis*, by Y. Katznelson.
- *Introduction to Fourier analysis on Euclidean spaces*, by E. Stein and G. Weiss.
- *Harmonic analysis : real variable methods, orthogonality, and oscillatory integrals*, by E. Stein.
- *Classical and Modern Fourier analysis*, by L. Grafakos.
- *Harmonic analysis and applications*, by J. Benedetto.

Grading policy: The final grade will be based on a weighted sum of your scores in the homework and exams. The weightage is as follows: Homework 50%, midterm 20%, final 30%.

Homework: Homework will be due by 5:00 pm Monday of every week starting the second week of classes, and should be submitted to your grader's mailbox. Homework assignments will be posted regularly on the Math 110c homepage. You are encouraged to discuss homework problems among yourselves. But the write-ups you hand in should be entirely your own. Late homework will not be accepted without prior consent of the instructor.

Exams: All exams will be take-home. You are asked to work on the exam questions on your own, and not discuss them with your peers, classmates or friends. Late submissions will not be accepted without well-documented explanations.