October 2, 2016

MATH 245A - FALL 2016

MWF 12:00 MS 6627, and Tuesday 12:00 MS 6627. First Class Friday Sept. 23.

Office hours:

John Garnett: MWF 2:00 in MS 7941

Dimitrios Ntalampekos

Text: R. Wheeden and A. Zygmund *Measure and Integral, An Introduction to Real Analysis, Second Edition*, CRC Press ISBN 13-978-1-4987-0289-8. We will cover Chapters 2 - 9. Chapter 1 (Preliminaries) will be assumed.

Grade: Homework 40%, final 40%, midterm 20%.

Exams: Final Wednesday, December 7, 3:00 - 6:00. Midterm October 25 in TA section. No books, class notes or phones on either exam, but you may bring a 4 x 6 file card with notes written on both sides.

Homework 1: Due Tuesday, Oct. 4. All from Wheeden-Zygmund, 2nd Edition *An Introduction to Measure Theory* Chapter 2; Problems 4, 5, 9, 12, 18, 21, 22, 23, 25, 31, 32.

Homework 2: Due Tuesday, Oct. 11. All from Wheeden-Zygmund, 2nd Edition. Chapter 3; Problems 3, 4, 5, 6, 8, 9, 11, 12.

Homework 3: Due Tuesday, Oct. 18. All from Wheeden-Zygmund, 2nd Edition. Chapter 3; Problems 17, 18, 20, 24, 27, 29, 30, 31, 32.

Homework 4: Due Oct. 25. Page 76, Problems 5, 7, 8, 9, 11, 12. Also, prove that if $C \subset [0,1]$ is the usual 1/3 Cantor set, then

$$\{x - y : x \in C, y \in C\} = [-1, 1].$$

Hints: The left side is a compact set. Try drawing a picture of $C \times C$.

Homework 5: Due Nov. 1. Page 76, Problems 13, 14, 18, 22, 24. Page 108, Problems 5, 6, 9, 10, 13.