2022/23 Semester 1   Math 6310 Real Analysis 1   Assignment 3

Due uploaded to Canvas Friday October 14, 2022, 11:59 p.m.

1. Read the Royden-Fitzpatrick textbook, all of Chapter 3, and start reading Chapter 4, with an emphasis on 4.2, through p. 79.

2. Do Royden-Fitzpatrick pp. 59–60, $\#4, 5, 9$; pp. 63–64, $\#16, 17, 21$; p. 67, $\#27$; p. 79, $\#9, 10$. [Remark: it is easier to do $\#9$ p.59 after you do $\#21$ p. 64.]

3. Let $\{E_i\}_{i=1}^n$ be a finite sequence of measurable subsets of $[0, 1]$. If each point of $[0, 1]$ belongs to at least four of these sets, prove that at least one of the sets has measure $\geq \frac{4}{n}$. [Hint: try to use characteristic functions in some way.]