

## Mathematics 83100 - Probability Theory I

**Schedule:** Monday, 2 p.m. - 4 p.m.

**Text:** *Probability: Theory and Examples*, Edition 4.1, by Rick Durrett. The textbook is available in electronic form at the author's webpage at <http://www.math.duke.edu/~rtd/PTE/pte.html>

**Prerequisite:** A course in measure theory.

**Course Description:** This is the first half of a two-semester course in probability. Some of the topics are the same as those that would be covered in a first undergraduate course in probability, but are approached here from a measure-theoretic point of view. The purpose of the course is to introduce to you the basic tools and concepts from probability theory and to give you a sense of their potential for applications. The main topics we will cover are foundations of probability theory, limit theorems, random walks, and, if time permits, martingales, Markov chains or Brownian motion (in short, we will cover most of the topics from the first 3 chapters of the textbook and some selected topics from the others).

**Evaluation:** There will be a few homework assignments, which may (but likely won't) be collected, a midterm (possibly take-home), and an in-class final exam.