

GRS MA 779 - Probability Theory I-Fall 2024

Instructor: Konstantinos Spiliopoulos

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Course web-page: <http://math.bu.edu/people/kspiliop/Fall2024MA779.html>

Meets: TuTh... 09:30AM-10:45AM at CAS 116

Text: *Probability: A Graduate Course* By Allan Gut, 2nd edition, Springer.

Recommended Texts:

1. *Probability*, A.N. Shirayev, Springer (Graduate Texts in Mathematics)
2. *Probability and Measure*, 3rd Edition, Patrick Billingsley, Wiley Series in Probability and Mathematical Statistics

Prerequisites: CAS MA 511; or consent of instructor.

Course Description: This is a graduate level introductory course to probability theory. In particular, we will cover: Introduction to probability with measure theoretic foundations. Fundamentals of measure theory. Probability space. Measurable functions and random variables. Expectation and conditional expectation. Zero-one laws and Borel-Cantelli lemmas. Characteristic functions. Modes of convergence. Uniform integrability. Skorokhod representation theorem. Basic limit theorems.

Tentative grading policy: Your grade will be based on :(a) Homework (30%), (b) midterm exam (30%) and final exam (40%). The grading policy may change according to the progress of the class.

Exams: There will be one midterm exam and one final exam. The exam material for each one of the two exams will be announced in class and posted on the webpage of the course. The final exam will be cumulative. Hence, make sure that you have learned from your mistakes of the midterm.

Homeworks: There will be several homeworks, both theoretical and more of applied flavor. The due date of each homework will be announced in class and it will usually be about one to two weeks after. Needless to say, you should work on the homework on your own, unless otherwise instructed by me. Late homeworks will NOT be accepted.

Late homework policy: Late homeworks will NOT be accepted.

Make-up policy: Make up exams will be given only in extreme circumstances, and only when accompanied by appropriate documentation. Any student with a valid reason to be given a make up exam must contact me prior to the exam, either by email or in person, and present documentation at the next class session attended.

Cheating: No form of cheating or plagiarism will be tolerated. University's policy and my policy are very strict here.