

MATH-UA-233-007 Theory of Probability

Spring 2021 Matan Leibovich Mon., Wed., 2:00pm-3:15pm

WW109

Course Description

An introduction to the mathematical treatment of random phenomena occurring in the natural, physical, and social sciences. Axioms of mathematical probability, combinatorial analysis, binomial distribution, Poisson and normal approximation, random variables and probability distributions, generating functions, Markov chains applications.

Prerequisites: MATH-UA 123 Calculus III or MATH-UA 213 Math for Economics III (for Economics majors) with a grade of C or better and/or the equivalent, and MATH-UA 140 with a grade of C or better and/or the equivalent. Not open to students who have taken MATH-UA 235 Probability and Statistics

Teaching Staff

Instructor

Matan Leibovich

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Office Hours: Mon., 3:30pm-5pm

WW1125 and on zoom **Teaching Assistants**

Liudeng Wang

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Recitations: Fri 2:00-3:15 pm WW109

Office Hours: WW645 Fri., 3:45pm-

5:45pm

Jash Tejaskumar Doshi

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Recitations: Fri 2:00-3:15 pm WW317

Office Hours: TBA

Textbook

A First Course in Probability, by Sheldon Ross, 10th edition. The course follows the book closely and most of the homework assignments will be taken from it. The book is available digitally through the NYU bookstore.

The books by [DeGroot and Schervish](#) and [Blitzstein](#) do a good job of covering the course material. DeGroot's book also covers statistics.

Prof. Joseph Blitzstein has a great collection of video lectures online at Harvard Stat 110 that cover the same material we will.

Homework assignments

Homework will be posted on Wednesday every week (starting from week 2) and will be due the following Friday. You are required submit the homework via Gradescope.

Midterms and Final

There will be two midterms, and a final. The midterms will take place during class hours.

Class attendance

As a general rule, you are expected to be present at all classes and recitations. We understand that some of you might not be able to attend in person, for which reason we will record all classes and recitations on zoom. We request that you use this option only when is necessary.

Communication

The syllabus, calendar, worksheets, homework problem sets, solutions and any updates/announcements for this course will be communicated in class, by email and/or posted to Brightspace.

We will also be using an online QA forum called Campuswire for discussions. Use the the following [link](#) (Access code is 7968. Register with your NYU email). Campuswire is the fastest way to communicate with us.

Grade makeup

- Homework - 20%
- Each midterm - 20%
- Final - 40 %

Class Schedule (tentative)

Week	Monday	Wednesday
1	1/24 1.1-1.5	1/26 1.5 2.3
2	1/31 2.4-2.5	2/2 2.5, 3.1-3.2
3	2/7 3.2-3.3	2/9 3.3-3.4
4	2/14 3.4	2/16 3.5, 4.1
5	2/21 <i>President's day</i>	2/23 4.2-3.4, 4.9
6	2/28 Midterm 1	3/2 4.4-4.5
7	3/7 4.6	3/9 4.7-4.8.1
8	3/21 4.8	3/23 5.1-5.2
9	3/28 5.2-3	3/30 5.5,5.4
10	4/4 5.4	4/6 6.1
11	4/11 Midterm 2	4/13 6.2
12	4/18 6.3	4/20 6.4-6.6
13	4/25 6.6	4/27 6.7,7.2,7.4
14	5/2 7.4-7.5	5/4 8.2-8.3
15	5/9 Review & supplementary material	