

# MATH 170E - Introduction to Probability and Statistics 1: Probability

Fall 2025

**Instructor:** Pablo López Rivera (plopez@math.ucla.edu)

**Time and place:** MWF 9:00-9:50 a.m.; Public Affairs Building 1222.

**Course website:** <https://bruinlearn.ucla.edu/courses/215962>

**How to reach me:** Contact me after lectures, during office hours, or via email.

**Office hours:** (Tentative) Monday, 10:30-11:30 a.m.; Wednesday, 10:30-11:30 a.m. (Room: MS 6903.)

**Teaching Assistant:** Colin Ni (colinni@math.ucla.edu)

## Overview

Lecture, three hours; discussion, one hour. Requisites: courses 31A, 31B. Not open to students with credit for course 170A, Electrical and Computer Engineering 131A, or Statistics 100A. Introduction to probability theory with emphasis on topics relevant to applications.

**Important Note:** You will not be prevented from enrolling in this class, even if you do not meet the prerequisites. It is your responsibility to verify that you are allowed to enroll in this class.

This course aims to provide an introduction to probability theory, which is the field within mathematics that is concerned with randomness and uncertainty, providing a rigorous framework to study these phenomena.

The course will be divided into four big topics: the definition of a probability and its essential properties; discrete probability distributions (Bernoulli, binomial, Poisson, etc.); continuous probability distributions (exponential, normal, Gamma, etc.); and finally, functions of random variables (moment generating functions, the central limit theorem, etc.). More or less, we will follow the course description that can be found on the UCLA website:

<https://ww3.math.ucla.edu/courses/>

I will post lecture notes as I complete them throughout the semester. These will be available on Bruin Learn or in the “Teaching” section of my website:

<https://www.math.ucla.edu/~plopez/teaching.html>

They will be partially inspired by the textbook *Probability and Statistical Inference*, by Hogg, Tanis, Zimmerman (10th Edition). However, we remark that some notations may change and that we may cover additional topics.

# Grades

Your grade in this class is based on your own performance on the homework and exams. It will not be based on your ranking relative to your classmates or on any sort of quota of how many students receive each letter grade. In particular, grading in this class is not competitive: e.g., if every student performs at an A level, then everyone will receive an A.

A final average of 90% or higher will guarantee you at least an A-; a final average of 80% or higher will guarantee you at least a B-; and a final average of 70% or higher will guarantee you at least a C-. These letter grade cut-offs may be adjusted downward at the end of the quarter, so that more students receive higher grades. But under no circumstances will the grade cut-offs be higher than stated above: this policy can only help you, not hurt you.

Your grade will be the better of the following two schemes:

- **Scheme 1:** Midterm 1: 30%, Midterm 2: 30%, Final exam: 40%.
- **Scheme 2:** Best midterm: 30%, Final exam: 70%.

**Homework:** Homework sets will be assigned each week and posted on the Bruin Learn course website. Homework will not be graded, but solving it is the most efficient way to prepare for the midterms and the final exam. They will mainly consist of problems from the textbook mentioned above.

**Midterms and final exam:** There will be two midterms and a final exam. The dates for the midterms are below. While these dates are tentative, they are very unlikely to change. I cannot give make-ups for missed midterms, but if you must miss one midterm, your grade will be computed using the second grading scheme above. The date of the final exam, listed below, was set months in advance by the university and cannot be changed. In accordance with university policies, you must take the final exam in order to pass the class. Make-ups for the final exam are permitted only under exceptional circumstances, as outlined in the UCLA student handbook.

- Midterm 1: Friday, October 24, 09:00-09:45 a.m.
- Midterm 2: Friday, November 14, 09:00-09:45 a.m.
- Final Exam: Thursday, December 11, 11:30 a.m.-2:30 p.m.

For the first and second midterms, you are allowed to bring one cheat sheet, A4 or letter size, and you are allowed to write on one side of it. You can also print it or write it on a tablet and then print it. For the final exam, you are allowed to bring one cheat-sheet, A4 or letter size, and you are allowed to write on both sides of it. You can also print it or write it on a tablet and then print it.

## Other Information

**Our inclusive learning environment:** UCLA values diversity and inclusion. We expect everyone in this class to contribute to a respectful, welcoming, and inclusive environment to support the learning of all other members of the class. If there are aspects of the instruction or design of this course that result in barriers to your inclusion, accurate assessment, or achievement, please notify us.