

# Math 3090 – Mathematical Probability

Lecture Time: 2:00pm – 3:50pm (MW) Location: Knudson Hall 301

Textbook: Ross, A First Course in Probability 10th Ed.

Prerequisite: Math 2080 and Math 3080

Instructor: Mei Yin [mei.yin@du.edu](mailto:mei.yin@du.edu)

Office and Office Hours: Zoom, 10:30am – 12:00pm (TR), or by appointment

## **Lecture Schedule**

Here is a plan of the course (may be altered for pedagogical reasons as the course develops).

|   |         |
|---|---------|
| Ch. 6: Jointly Distributed Random Variables | 2 weeks |
| Ch. 7: Properties of Expectation            | 5 weeks |
| Ch. 8: Limit Theorems                       | 2 weeks |
| Ch. 9: Additional Topics in Probability     | 1 week  |

## **Course Description**

Topics of study will include limit theorems for independent random variables, multivariate distributions, and generating functions.

## **Tentative Calendar**

| The Week Of             | Material Covered            |
|-------------------------|-----------------------------|
| January 6 – January 10  | Introduction, 6.1, 6.2, 6.3 |
| January 13 – January 17 | 6.4, 6.5                    |

|                           |                                    |
|---------------------------|------------------------------------|
| January 21 – January 24   | 6.7, 7.1, 7.2                      |
| January 27 – January 31   | 7.3, 7.4, 7.5                      |
| February 3 – February 7   | 7.6, Review                        |
| February 10 – February 14 | Midterm, 7.7                       |
| February 17 – February 21 | 7.8, 7.9, 8.1                      |
| February 24 – February 28 | 8.2, 8.3, 8.4                      |
| March 3 – March 7         | 8.5, 8.6, 9.1                      |
| March 10 – March 14       | 9.2, 9.3, 9.4                      |
| March 17 – March 19       | Review, Final Project Presentation |

## **Grading**

Your final grade for the course will be determined based on a numerical weighted average calculated as follows: **Homework 30% Midterm 30% Final Project 40%**. This average percentage will then be converted into a final letter grade based partially on how other students perform this quarter, and partially on typical percentage grades from previous quarters of the course.

**Homework** will be assigned about once a week. **Homework should be turned in via Canvas and the due date is every Monday at the beginning of the class.** For submitted problems, students are expected to show work and justify their answers. **The six highest homework scores will contribute to 30% of your final grade.**

A **midterm** is scheduled **during class time** on **Monday, February 10**. A **final project presentation** is scheduled **during class time** on **Wednesday, March 19**. The final project may be targeted towards either the theoretical or the applied aspect of probability. Makeup exams and presentations will only be offered in the event of extreme circumstances. If you think you have a problem which will force you to miss the exam and/or the presentation, please come talk to me as soon as possible.

## **Help**

**Additional handouts will be distributed throughout the quarter.**

Students are also encouraged to ask for individualized help from the instructor at any time.

## **Students with Disabilities**

If you qualify for academic accommodations because of a disability or medical issue, please submit a faculty letter to me from AccessibleDU: Student Disability Services (SDS) in a timely manner so that your needs may be addressed. SDS determines accommodations based on documented disabilities/medical issues. SDS is located in Suite 22 on the lower level of Driscoll South, 303-871-3241. Information is also available online at <https://studentaffairs.du.edu/disability-services-program>.

## **Religious Accommodations**

University policy grants students excused absences from class or other organized activities for observance of religious holy days, unless the accommodation would create an undue hardship. Faculty are asked to be responsive to requests when students contact them **in advance** to request such an excused absence. Students are responsible for completing assignments given during their absence, but should be given an opportunity to make up work missed because of religious observance. Once a student has registered for a class, the student is expected to examine the course syllabus for potential conflicts with holy days and to notify the instructor by the end of the first week of classes of any conflicts that may require an absence (including any required additional preparation/travel time). The student is also expected to remind the faculty member in advance of the missed class, and to make arrangements in advance (with the faculty member) to make up any missed work or in-class material within a reasonable amount of time.

## **Honor Code**

Follow the [Honor Code](#) in all activities related to this course. Incidents of academic misconduct will be reported to and investigated by the Office of Student Conduct.

## **Other**

Check the **DU academic calendar** for important dates throughout the quarter: <http://www.du.edu/registrar/calendar/index.html>.

Note: Homework assignments on this page are subject to change, and updates will be posted on Canvas.

**Work the following homework problems at the appropriate time.**

| Chapter # | Problems                                | Theoretical Exercises |
|-----------|---|-----------------------|
| 6         | 2, 6, 7, 14, 15, 18, 19, 23, 24, 28, 30 | 5, 6, 9               |
| 7         | 3, 8, 9, 10, 13, 18, 21, 22, 25, 38, 45 | 50, 54                |
| 8         | 2, 3, 7, 11, 15, 16                     | 4, 9                  |
| 9         | 2, 4, 6, 8, 12                          | 1, 2                  |