

Math 3080 – Introduction to Probability

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

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

Prerequisite: Math 1953 or Math 1963

Instructor: Mei Yin mei.yin@du.edu

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

TA: TBA

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

Ch. 1: Combinatorial Analysis	1 week
Ch. 2: Axioms of Probability	1.5 weeks
Ch. 3: Conditional Probability and Independence	1.5 weeks
Ch. 4: Random Variables	3 weeks
Ch. 5: Continuous Random Variables	3 weeks

Course Description Topics of study will include basic probability models, combinatorial methods, random variables, independence, conditional probability, probability laws, and applications to classical problems.

Learning Objectives

By the end of this course, students will be able to:

- Apply combinatorial methods to solve probability problems involving permutations, combinations, and sample spaces.
- Use laws of probability to analyze probabilistic models.

- Interpret probabilistic results in real-world contexts and communicate solutions clearly using appropriate mathematical notation and reasoning.
- Develop independent learning and collaborative problem-solving skills by engaging with course materials, discussions, and assigned practice problems.

Tentative Calendar

The Week Of	Material Covered
September 8 – September 11	Introduction, 1.1, 1.2, 1.3, 1.4, 1.5
September 14 – September 18	2.1, 2.2, 2.3, 2.4, 2.5
September 21 – September 25	2.6, 2.7, 3.1, 3.2
September 28 – October 2	3.3, 3.4, 3.5
October 5 – October 9	4.1, 4.2, 4.3, 4.4, Review
October 12 – October 16	Midterm, 4.5, 4.6, 4.7
October 19 – October 23	4.8, 4.9, 4.10
October 26 – October 30	5.1, 5.2, 5.3
November 2 – November 6	5.4, 5.5, 5.6
November 9 – November 13	5.7, Review
November 16 – November 20	Review, Final

Grading Your final grade for the course will be determined based on a numerical weighted average calculated as follows: Homework 30% Midterm 30% Final 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 Homework will be assigned about once a week. The due date is every Monday at the beginning of the class. Homework must be turned in promptly to receive credit. For submitted problems, students are expected to show work and justify their answers. Please write your name on the first page. If you are submitting multiple pages, please staple them together. The eight highest homework scores will contribute to 30% of your final grade.

Exams A midterm is tentatively scheduled during class time on Monday, October 12. The final exam/presentation is scheduled on Wednesday, November 18 at 2:00pm – 3:50pm in our usual classroom. Makeup exams will only be offered in the event of extreme circumstances. If you think you have a problem which will force you to miss an exam, 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 or the TA 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>.

Honor Code / Academic Integrity All work submitted in this course must be your own. You are encouraged to work together on homework but make sure that working together does not turn into copying another student's answer. For consequences of violating the Academic Misconduct policy, refer to the University of Denver website on the Honor Code (<https://studentaffairs.du.edu/student-rights-responsibilities/honor-code>).

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.

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. The website is always the most accurate source for assignments, so if you print out a copy of this page early, check the web each week to make sure the problems have not been changed. Your teacher will also call attention to it whenever any change is made.

Work the following homework problems at the appropriate time.

Chapter #	Problems	Theoretical Exercises
1	3, 7, 12, 13, 21, 22, 24	3, 12a, 13, 16
2	2, 3, 4, 6, 8, 10, 12ab, 13, 15, 18, 20, 23, 33, 42, 45, 51, 56	6, 9, 12, 18
3	5, 10, 15, 21, 26, 44 (look at only), 52, 70, 73	2
4	1, 2, 4, 11a, 13, 19, 20, 21, 30, 35, 38, 41, 43, 51, 59, 61, 64, 75	7, 16
5	1, 6, 13, 15, 21, 23, 24, 26, 31, 32, 33, 37, 38, 39, 40, 41	9, 30