# 2023 Summer 1 MA 581 A2 Probability Syllabus

## Course Information

| | |
|---|---|
| **Instructor**: | Inkee Jung |
| **Email**: | inkeej@bu.edu |
| **Office Hours and Office**: | Wednesday 7 pm 8 pm in CCDS 308, or by appointment |
| **Lecture**: | May 23 — June 30, 2023<br>Monday, Tuesday, and Thursday, 6:00 pm to 8:30 pm<br>Make-up classes on two Fridays:<br>6/2 for the memorial day 5/29<br>and 6/23 for the juneteenth holiday 6/19 |
| **Classroom**: | CAS 222 |

## Course Description

- **Textbook**: Neil A. Weiss, *A course in Probability*.
- **Office Hour** Find our class signup link at: https://piazza.com/bu/summer2023/ma581a2
  In addition to office hours I will try to maintain an active presence on the Piazza board. Try to post questions in Piazza for your classmates to answer. I will monitor the discussions regularly to make sure no questions go unanswered.
- **Homework** (https://www.gradescope.com/courses/542712).
  Homework will be posted on the blackboard site and Gradescope. You should submit your work to Gradescope, link at the above. All homework is due by the start of class on Mondays. No late homework will be accepted.
- **Classwork**: We will devote some class time every day to either work on homework, take quizzes, or to work on challenge problems. Keep in mind that you are still expected to have completed most/all of the homework assignments on your own before class. There will not be enough time in class do to an entire homework assignment.
- **Grading**: Homework 30%, Midterm 30%, Final 30%, and Classwork 10 %.

## Course Schedule

Below is a tentative schedule for the course. It is subject to change based on the pace of the class.

| **Week** | **Dates** | **Topics** | **Chapters** |
|---|---|---|---|
| Week1: | 5/23, 25 | Basic Set Theory, Basic Probability, Conditional Probability | 1.2 — 4.1 |
| Week2: | 5/30, 6/1, 2 | Independence, Baye's Rule, Discrete Random Variables, Probability Mass Function (p.m.f) | 4.3 — 5.8 |
| Week3: | 6/5, 6, 8 | Joint p.m.f, Marginal p.m.f, and Conditional p.m.f, Expectation, | 6.1 — 7.5 |
| | **Midterm** | 6/8, during the class (tentative) | |
| Week4: | 6/12, 13, 15 | Continuous Random Variables, Cumulative Distribution Function (c.d.f), Probability Density Function (p.d.f) | 8.1 — 8.7 |
| Week5: | 6/20, 22, 23 | Joint p.d.f, Marginal p.d.f, Conditional p.d.f, Transformation Theorem | 9.1 —9.7 |
| Week6: | 6/26, 27, 29 | Expectation, Variance, Conditional Expectaion, Moment Generating Function, Laws of Large Number, The Central Limit Theorem | 10.1 — 11.4 |
| | **Final** | 6/29 | |

## Note

This syllabus is subject to change at the discretion of the instructor. Any changes will be communicated to the students in a timely manner.