

# MATH/STAT 395 A: Probability II (Summer 2020)

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**Textbook.** *Introduction to Probability*, by Anderson, Seppäläinen, and Valkó, Cambridge University Press.

## Logistics

**Lectures.** MWF 8:30 am - 10:40 am (via [Zoom](#), recorded)

**Scribbles.** Before each lecture, a link will be shared so you can watch me writing as I go over the slides. Both the [note](#) and [screen recording](#) will be posted after the lecture.

**Website.** [Canvas](#).

**Discussion board.** [Piazza](#).

**Anonymous feedback.** Submit [here](#).

## Office hours

**Instructor.** 10 am - noon Thur, via [Zoom](#).

**TA.** 11 am - noon Wed and Fri, via [Zoom](#).

## Homework

There are 4 problem sets. They are due each every **Monday before noon**. Homeworks are submitted on Canvas. **No late submission will be accepted**. Each problem set consists of several *required* problems and one (*optional*) *extra credit* problem.

**Grading.** *Clear and detailed* mathematical explanation is required.

**Format.** You should submit a PDF. You are strongly encouraged to typeset your solutions, e.g., with [LaTeX](#) or [GNU TeXmacs](#).

**Collaboration.** You are encouraged to work with your classmates. But you should write up the solutions *on your own*.

## Exams

You will be able to download the exam paper when time starts. After you finish, save your solutions (e.g., by scanning or taking a photo) as a PDF and submit on Canvas. You should *work on your own* for the exam and turn in your solutions within *24 hours*.

**Midterm.** one-day take-home, **August 10 Mon**.

**Final.** one-day take-home, **August 21 Fri**.

## Grades

### Grades are based on.

Homework 30%, Midterm 20%, Final 30%, Quizzes 10%, Participation 10%.

- Participation scores are earned by asking/answering on Piazza or interaction during lectures.
- Quizzes are answered on Canvas. You can complete the quizzes anytime before the course ends.

**Minimum requirement for getting 2.0.** Summer 2020 continues to be an “*extraordinary circumstances quarter*”. You can get at least 2.0 (equivalent to S) if scoring  $\geq 50\%$  on midterm and final, and  $\geq 70\%$  on 3 out of 4 homework problem sets.

## Calendar

Here is a tentative calendar. See the [up-to-date version here](#).

Week	Date	Chapter	Due	Note
1	07/24	review of 394		
	07/27		HW 1	
2	07/29	§6.1-6.3, §8.1-8.3		
	07/31			
	08/03		HW 2	
3	08/05	§7.1, §8.4-8.5, §9.3		
	08/07			
	08/10		HW 3	Midterm Exam
4	08/12	§10.1-10.4, §6.4		
	08/14			
	08/17		HW 4	
5	08/19	Chernoff, Jensen		
	08/21	and KL		Final Exam

## Prerequisites

MATH/STAT 394, linear algebra, multivariate calculus.

## Contents

After this class, among others, you should be able to answer the following questions.

1. What is a joint density/mass function?
2. How to calculate expectation of a function of multiple random variables?
3. What is a bivariate normal distribution?
4. What is a conditional distribution and how to calculate conditional expectations?
5. How and when to use the central limit theorem?
6. What is Jensen's inequality and how is it applied to expectations?

## Miscellaneous

**DRS.** If you have accommodations from Disability Resources for Students (DRS), please let the instructor know.

**Recommendation letters.** You are *not* recommended to ask a letter from the instructor if you have other options, because the instructor is still a PhD student and his letter would carry little weight.

**Diversity.** Diverse backgrounds, embodiments, and experiences are essential to the critical thinking endeavor at the heart of university education. Therefore, I expect you to follow the [UW Student Conduct Code](#) in your interactions with your colleagues and me in this course by respecting the many social and cultural differences among us, which may include, but are not limited to: age, cultural background, disability, ethnicity, family status, gender identity and presentation, citizenship and immigration status, national origin, race, religious and political beliefs, sex, sexual orientation, socioeconomic status, and veteran status.