MATH/STAT 394 A: Probability I (Summer 2020)

June 29, 2020

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Textbook. *Introduction to Probability*, by Anderson, Seppäläinen, and Valkó. (free online via UW VPN)

Logistics

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

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 5 problem sets. They are due each every **Monday before noon**, except for HW1, which is due Friday of the first week. Homeworks are submitted on Canvas. **No late submission will be accepted.** Each problem set consists of *required* problems and a few *(optional) extra credit* problems.

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*. If you collaborated with someone on a problem set, please mark his/her name in your solution.

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, **July 10** Fri.

Final. one-day take-home, **July 22** Wed.

Grades

Grades are based on.
Homework 30%, Midterm 20%, Final 30%, Quizzes 10%, Participation 10%.
Participation scores are earned by discussing on Piazza or interaction during lectures.
Quizzes are answered on Canvas.

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 $\geqslant$50% on midterm and final, and $\geqslant$70% on 4 out of 5 homework problem sets.

Calendar

Here is a tentative calendar. See the up-to-date version here.

Week	Date	Chapter	Due	Note
	06/22			
1	06/24	§1		
	06/26		HW 1	
	06/29		HW 2	
2	07/01	§2		
	07/03			Holiday (no class)
	07/06	§3	HW 3	
3	07/08			
	07/10	Midterm		
	07/13	§4.1-4.5	HW 4	
4	07/15			
	07/17	§5.2, §6.1		
5	07/20	§9.1-9.2	HW 5	
	07/22	Final		

Prerequisites

Univariate calculus (MATH 126/136), sums, power series, basic combinations and permutations.

Contents

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

1. What is a probability space and a random variable?

2. How to use Bayes theorem?

3. How to calculate expectation and variance from a pdf/pmf?

4. What are iid random variables?

5. What is the binomial distribution and when is it approximated by normal or Poisson?

6. How to calculate a confidence interval for the sample proportion?

You are welcome to continue taking MATH/STAT 395 in the following B term.

Miscellaneous

DRS. If you have accomodations 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.