STAT 394 A – Probability I

Spring Quarter 2022

Instructor:	Prof. Alexander Giessing giessing@uw.edu	**Office Hours:**	Wed 10:00 AM – 11:00 AM (B-308 PDL)
TAs:	Kunhui Zhang zhangkh@uw.edu	**Office Hours:**	Mon 3:00 PM – 4:00 PM (STSC) Fri 3:00 PM – 4:00 PM (STSC)
Lectures:	Mon Wed Fri 1:30 – 2:20 PM	**Classroom:**	SAV 260
Course Page:	https://canvas.uw.edu/courses/1548372		

Course Description: This is an introductory course in probability. In the first half we will discuss the axiomatic definition of probability, concepts from set theory and combinatorics, conditional probability and independence, and discrete random variables. In the second half we will introduce continuous random variables and cover fundamental probability inequalities, the weak law of large numbers, and the central limit theorem. Along the way we will encounter many classical random variables, such as the Bernoulli, Binomial, Geometric, Poisson, Uniform, Exponential, Gamma, and Gaussian random variable.

Prerequisites: MATH 126 or MATH 136.

Lecture Notes and References: Lecture notes will be posted regularly on Canvas. There is no required textbook, but any of the following is a good addition to the lecture notes:

- Anderson, D. et al. (2018). *Introduction to Probability*, Cambridge University Press.
- Ross, S. (2018). *A First Course in Probability*, 10th edition, Pearson.

Course Communication: Your TA will manage and contribute to the discussion board on Canvas. This forum should be your first resource if you have questions. Your participation (both asking and answering questions) in the online discussion board factors into your participation grade. If you need to get in touch with Prof. Giessing directly, please use the Canvas messaging system. As this is a large class, the response time for these messages will typically be around 48 hours. Prof. Giessing will not respond to messages on any other platform, except in special circumstances (e.g. communicating with UW DRS).

Lectures: Regular attendance of the lectures is highly recommended. The lectures cover many conceptual issues, probabilistic thinking, and additional explanations that may not be developed as extensively in the lecture notes.

Homework: There will be 9 homework assignments, the best 8 will count equally to your final grade. Homework assignments will be posted on Canvas and will be due seven days later. You must submit a single pdf file containing answers to questions in the order presented. Late homework submissions will be penalized with 10% of the possible points; missing homework submissions will receive zero points. I will not grant extensions on homework assignments due to sickness. You are encouraged to work in groups of two or three students on

the homework problems, please indicate your study group members on your homework submission. However, verbatim copying solutions is strictly forbidden; each student must produce their own solutions.

Exams: There will be a midterm and a final exam. The midterm exam will cover material of the first half of the course, the final exam will cover material from the second half. The exams are closed-book and closed-notes. You may use a simple, non-graphing calculator during the exams. The exams are required and there will not be any make-up exams; missing them will result in a grade of zero.

Schedule and Grade Policy:

Participation (5%)	anytime in Lectures/ Labs/ on Canvas
Homework (30%)	10:00 PM at due dates
Midterm (20%)	Mon, 1:30 – 2:20 PM, May 2, 2022
Final (45%)	Mon, 2:30 – 4:20 PM, June 6, 2022

Final grades will be determined based on your percentage score that includes all of the components above. Grade percentages will be converted to final numeric grades and curving will only take place on final grades. Percentages will correspond to at least the standard UW grade scale as follows:

Percentage	Grade	Percentage	Grade
10%	0.0	60%	2.4
20%	0.8	70%	2.8
30%	1.2	80%	3.2
40%	1.6	90%	3.6
50%	2.0	$> 98\%$	4.0

Academic Integrity: Students shall abide by the University of Washington Academic Responsibility policies, which are outlined at https://depts.washington.edu/grading/pdf/AcademicResponsibility.pdf. Violations and suspected violations will be reported to the appropriate Dean's Representative and through the webpage for Community Standards and Student Conduct. The instructor reserves the right to assign a failing grade for the course for serious violations of student conduct. Note: Use of websites or online forums which provide solutions for class assignments is not allowed. You are also not allowed to distribute course materials to any individual or corporation outside of this course, STAT 390 A.

Academic Accommodations: Your experience in this class is important to me. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law. If you have already established accommodations with Disability Resources for Students (DRS), please activate your accommodations via myDRS so we can discuss how they will be implemented in this course. If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (conditions include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), contact DRS directly to set up an Access Plan. DRS facilitates the interactive process that establishes reasonable accommodations. Contact DRS at disability.uw.edu.

Religious Accommodations: Washington state law requires that UW develop a policy for the accommodation of student absences or significant hardship due to reasons of faith or conscience or for organized religious activities. The UW's policy, including more information about requesting an accommodation, is available at Religious Accommodations Policy. Accommodations must be requested within the first two weeks of this course using the Religious Accommodations Request form.

Diversity and Inclusion: 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.