CSE 107
Probability and Statistics for Engineers
Fall 2023

Description: Introduction to fundamental tools of stochastic analysis. Probability, conditional probability; Bayes Theorem; random variables and transforms; independence; Bernnoulli trials. Statistics, inference from limited data; outcomes of repeated experiments; applications to design; assessment of relative frequency and probability; law of large numbers; precision of measurements. Elements of stochastic processes, Poisson processes; Markov chains.

Prerequisites: CSE 16; and AM 30 or MATH 22 or MATH 23A

Lecture: TTh 1:30 - 3:05pm   Earth&Marine B206
Webpage: https://people.ucsc.edu/~ptantalo/cse107/Fall23/

Instructor: Patrick Tantalo https://users.soe.ucsc.edu/~ptantalo/
Email: ptantalo@soe.ucsc.edu

Office Hours: Wednesday: 10:00am - 12:00pm & 2:00pm - 4:00pm Zoom Link (**Uses CruzID Gold**)
Meeting ID: 933 5101 7688
Dates: Wednesday October 4 - Wednesday December 6

Teaching Assistants:
Hardika Gawde	(hgawde@ucsc.edu)
Kajal Patil	(kapatil@ucsc.edu)
Xiaoxue Zhang	(xzhan330@ucsc.edu)
Aaja Ouellette	(aaouelle@ucsc.edu)

Course Tutors:
Mohesha Bajpai	(mbajpai@ucsc.edu)
Rithesh Kumar	(rkumar45@ucsc.edu)
Sindhu Dinesh Raju	(sdineshr@ucsc.edu)
Akashleena Sarkar	(aksarkar@ucsc.edu)
Ananth Srikanth	(asrikan1@ucsc.edu)

Required Text:
Introduction to Probability (2nd edition) by Bertsekas and Tsitsiklis (BT). Athena Scientific (2008). (ISBN 978-1-886529-23-6.) On Reserve (2-hour loan) at the Science Library.

Recommended Texts:
Probability an Introduction (2nd edition), Grimmett & Welsh. Oxford University Press (2014).
Probability & Random Processes (2nd edition), Grimmett & Stirzaker. Oxford University Press (1992).
Grinstead and Snell's Introduction to Probability (2nd edition). Orange Grove Texts Plus (2009)
Basic Probability Theory, Robert B. Ash. Dover (2008).

Coursework:
- 25% <u>Homework</u>: Written exercises from the required text (7-8)
- 15% <u>Lab Assignments</u>: Random process simulations (5-6)
- 20% <u>Midterm Exam 1</u>: Tuesday, October 24 (1:30-2:35, lecture to follow)
- 20% <u>Midterm Exam 2</u>: Tuesday, November 21 (1:30-2:35, lecture to follow)
- 20% <u>Final Exam</u>: Monday, December 11 (12:00–2:00pm)

All scores will be rounded to the nearest 10th of a percent. They will not be rounded further. No scores are curved. The following letter grade boundaries will be used to determine your grade in the class.

Grading scale:
A+	98.0% - 100%
A	93.0% - 97.9%
A-	90.0% - 92.9%
B+	88.0% - 89.9%
B	83.0% - 87.9%
B-	80.0% - 82.9%
C+	78.0% - 79.9%
C	70.0% - 77.9%
C-	68.0% - 69.9%
D+	65.0% - 67.9%
D	61.0% - 64.9%
D-	59.0% - 60.9%
F	0% - 58.9%

Accommodations for Students with Disabilities

UC Santa Cruz is committed to creating an academic environment that supports its diverse student body. If you are a student with a disability who requires accommodations to achieve equal access in this course, please contact the Disability Resource Center (DRC) by email drc@ucsc.edu or by phone 831-459-2089. Once I receive your accommodation authorization from the DRC, I will be happy to meet with you in office hours to discuss how to ensure your full participation in the course. See https://drc.ucsc.edu/ for further information.

Academic Honesty:

The Baskin School of Engineering has a zero-tolerance policy for any incident of academic dishonesty. If cheating occurs, consequences may range from getting zero on a particular assignment to failing the course. In addition, every case of academic dishonesty is referred to the students' college Provost, who sets in motion an official disciplinary process. Cheating in any part of the course may lead to failing the course, suspension or dismissal from the Baskin School of Engineering, or from UCSC.

What is cheating? In short, it is presenting someone else's work as your own. Examples would include copying written homework solutions from another student, or allowing your own work to be copied. Sharing any kind of information on an exam would also be considered cheating. You may discuss your homework solutions with fellow students, but your collaboration must be at the level of *ideas* only. You may freely give and receive help with any example discussed in class, in the text, or in one of the handouts. However, you may not share in the act of *writing* your solutions to homework problems.

Most of you are aware that various large language models (LLMs) like ChatGPT are readily available. <u>Our policy is that you may use LLMs while working on lab and homework assignments, but be warned that they frequently give answers that are very wrong</u>. We will discuss how LLMs might be used effectively to understand the topics in this course.

Please see the following links for the official UCSC policies on Academic Misconduct for

Graduate Students: https://www.ucsc.edu/academics/academic-integrity/
Undergraduate Students: https://ue.ucsc.edu/academic-misconduct.html/

Important Dates:
Waitlists expire: Saturday, October 7   (permission codes required after this)
Add/Drop/Swap deadline: Wednesday October 18 (add by petition only after this)
Withdraw from class deadline: Wednesday, November 8

Registrar Information:
Enrollment FAQ: https://registrar.ucsc.edu/faqs/students/enrollment/index.html
Waitlist FAQ: https://registrar.ucsc.edu/faqs/students/wait-list/index.html
Enrollment Videos: https://orientation.ucsc.edu/next-steps/slug-videos.html#enrollment
More How-To Videos: https://orientation.ucsc.edu/summer/how-to-index.html