

CSE 107

Probability and Statistics for Engineers

Fall 2022

Description:

Introduction to fundamental tools of stochastic analysis. Probability, conditional probability; Bayes Theorem; random variables and transforms; independence; Bernoulli 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

Time and Place: TTh 3:20- 4:55pm Jack Baskin Auditorium 101

Class Webpage: <https://classes.soe.ucsc.edu/cse107/Fall22/>

Instructor: Patrick Tantalo <http://users.soe.ucsc.edu/~ptantalo/>

Office Hours: Wednesday 2:00pm - 4:30pm (via Zoom)

Dates: Wednesday, September 2 to Wednesday, November 30

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Teaching Assistants:

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Course Tutors:

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LSS Small Group Tutor:

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Required Text:

Introduction to Probability (2nd edition) by Bertsekas and Tsitsiklis (BT). Athena Scientific (2008). (ISBN 978-1-886529-23-6.)

Recommended Texts:

Grinstead and Snell's Introduction to Probability (2nd edition). Orange Grove Texts Plus (2009)

Basic Probability Theory, Robert B. Ash. Dover (2008).

Probability and Random Processes (2nd edition), Grimmett and Stirzaker. Oxford Press (1992).

Coursework:

- 20% Homework: Written exercises from the above texts (7-8)
- 10% Lab Assignments: Random process simulations (4-5)
- 20% Midterm Exam 1: Tuesday October 18 (3:20-4:25, lecture to follow)
- 20% Midterm Exam 2: Tuesday November 15 (3:20-4:25, lecture to follow)
- 30% Final Exam: Monday December 5 (4:00-6:00pm)

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 submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) to me by email, preferably within the first two weeks of the quarter. I would be happy to meet with you in office hours to discuss how we can ensure your full participation in the course. I encourage all students who may benefit from learning more about DRC services to contact DRC by phone at 831-459-2089 or by email at drc@ucsc.edu. See also <https://drc.ucsc.edu/>.

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. 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 1 (permission codes required after this)

Add/Drop/Swap deadline: Wednesday October 12 (add by petition only after this)

Withdraw from class deadline: Wednesday, November 2

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>