

Statistics 322: Probabilistic Methods for Electrical Engineers

Spring 2024

Lectures: MWF 12:05 pm - 12:55 pm in DURHAM 0171

Instructor: Dr. Vivek Roy

Office, Phone, and E-mail: 3415 Snedecor Hall; 294-8701; vroy@iastate.edu

Office Hours: MW 1:30- 2:30 pm, or by appointment

Course Management: All course materials are posted on the course Canvas web page.

TA: Min Wang (minw23@iastate.edu)

TA Office Hours: H 9:40–10:40 am and F 2–4 p.m. in 3404 Snedecor; or by appointment.

Topics: Sets and events, probability space, conditional probability, total probability and Bayes' rule. Discrete and continuous random variables, cumulative distribution function, probability mass and density functions, expectation, moments, moment generating functions, multiple random variables, functions of random variables, stochastic process, elements of statistics, hypothesis testing, confidence intervals, least squares.

Learning Outcomes: By the end of this course, students should learn basic concepts of probability and statistics to solve relevant problems that arise from applications in electrical engineering.

Textbook: Dimitri P. Bertsekas and John N. Tsitsiklis (2008): *Introduction to Probability* (2nd edition)

- **Class attendance:** You are responsible for all material presented in lecture and/or assigned as required reading.
- **Homework:** Weekly assignments will be due online on Fridays. No late homework will be accepted without official excuse.
- **Two** in-class exams are scheduled tentatively on **February 23rd and April 5th.**

- One two-hour comprehensive final exam during the final week on **May 6th 12:00-2:00 pm**.

Course Grade:	Assignments	15%
	Two exams	20% each (40% total)
	Final exam	<u>45%</u>
		100%

- **Accessibility Statement**

Iowa State University is committed to assuring that all educational activities are free from discrimination and harassment based on disability status. Students requesting accommodations for a documented disability are required to work directly with staff in Student Accessibility Services (SAS) to establish eligibility and learn about related processes before accommodations will be identified. After eligibility is established, SAS staff will create and issue a Notification Letter for each course listing approved reasonable accommodations. This document will be made available to the student and instructor either electronically or in hard-copy every semester. Students and instructors are encouraged to review contents of the Notification Letters as early in the semester as possible to identify a specific, timely plan to deliver/receive the indicated accommodations. Reasonable accommodations are not retroactive in nature and are not intended to be an unfair advantage. Additional information or assistance is available online at www.sas.dso.iastate.edu, by contacting SAS staff by email at accessibility@iastate.edu, or by calling 515-294-7220. Student Accessibility Services is a unit in the Dean of Students Office located at 1076 Student Services Building.

- **Free Expression** Iowa State University supports and upholds the First Amendment protection of [freedom of speech](#) and the principle of [academic freedom](#) in order to foster a learning environment where open inquiry and the vigorous debate of a diversity of ideas are encouraged. Students will not be penalized for the content or viewpoints of their speech as long as student expression in a class context is germane to the subject matter of the class and conveyed in an appropriate manner.

- **Prep Week** This class follows the Iowa State University Dead Week guidelines as outlined in <https://www.provost.iastate.edu/academic-programs/dead-week>

- **Harassment and Discrimination** Iowa State University does not discriminate on the basis of race, color, age, ethnicity, religion, national origin, pregnancy, sexual orientation, gender identity, genetic information, sex, marital status, disability, or status as a U.S. Veteran. Inquiries regarding non-discrimination policies may be directed to Office of Equal Opportunity, 3410 Beardshear Hall, 515 Morrill Road, Ames, Iowa 50011, Tel. 515-294-7612, Hotline 515-294-1222, email eooffice@iastate.edu.
- **Religious Accommodation** Iowa State University welcomes diversity of religious beliefs and practices, recognizing the contributions differing experiences and viewpoints can bring to the community. There may be times when an academic requirement conflicts with religious observances and practices. If that happens, students may request reasonable accommodation for religious practices. In all cases, you must put your request in writing. The instructor will review the situation in an effort to provide a reasonable accommodation when possible to do so without fundamentally altering a course. For students, you should first discuss the conflict and your requested accommodation with your professor at the earliest possible time. You or your instructor may also seek assistance from the Dean of Students Office at 515-294-1020 or the Office of Equal Opportunity at 515-294-7612.
- **Academic Dishonesty:** This class will follow Iowa State University policy on academic dishonesty found in the Iowa State University Catalog. A score of zero will be given for the entire assignment in which the academic dishonesty occurred. If a pattern of academic dishonesty has been found to occur, a grade of F for the entire course may be given.