

Course Syllabus

EE 520, Random Processes

Course Information

- **Term/Year:** Fall 2026
- **Department:** Electrical and Computer Engineering
- **CRN:** 10914
- **Credits:** 4
- **Location/Modality:** Fourth Avenue Building, Room 171
- **Meeting times:** Mon/Wed 3:30-5:30PM
- **Drop/Withdraw Deadlines:** Check the [PSU Academic Calendar to find dates](#)
- **Prerequisites:** Expected preparation is probability at the undergraduate level

Instructor Information

- **Instructor:** John Lipor
- **Preferred Contact Information:** class Discord server
- **Expected Response Time:** 24 hrs
- **Office Hours:** Mon/Wed 5:30-6:10PM or by appointment

Accessibility Statement

I am committed to creating an accessible and inclusive learning environment for all of my students. If you encounter any accessibility barriers or challenges in this course, please reach out to me via email. I will work with you and our campus partners to evaluate the issue and find solutions.

Course Description

The goal of this course is a rigorous, application-driven understanding of probability and random processes at the graduate level. One idea organizes the entire quarter: a probability model answers three questions — what is uncertain, what is observed, and how should observation change belief and action? We apply that one formula to progressively bigger objects: a single hidden fact, one random variable, a pair, a Gaussian vector, and finally an entire function.

Course Outcomes/Learning Objectives

- Understand what probability is and how to use probabilities to characterize random events
- Understand how to define a random variable and apply the definition to engineering problems
- Solve problems involving functions of random variables
- Know how the expectation of a random variable is defined and how to calculate it
- Solve engineering problems that involve random vectors
- Know how a random process is defined and the properties of random processes

Required Materials

Instructor-provided lecture notes serve as the primary course material. We will also use the free textbook [Introduction to Probability, Statistics, and Random Processes](#) by Hossein Pishro-Nik.

Major Assignments

Homework: Seven homework assignments will be given.

- Late homework assignments will not be accepted. Instead, the lowest homework score will be dropped.
- Homework assignments are to be completed on your own. You are allowed to consult with other students (and instructors) during the conceptualization of a solution, but all written work, whether in scrap or final form, is to be generated by you, working alone.
- You are not allowed to use, or in any way derive advantage from, the existence of solutions prepared in prior years. Violation of this policy is an honor code violation. If you have questions about this policy, please contact me. While collaboration can sometimes be helpful to learning, if overused, it can inhibit the development of your problem solving skills.

Exams: There will be one midterm exam and one final. You may use one Letter/A4 handwritten note sheet for the first exam and two Letter/A4 note sheets for the second exam.

Grading Criteria

Homework: 40%

Midterm Exam: 30%

Final Exam: 30%

Course Attendance and Make-up Policies

Lecture attendance is not required. Lecture recordings may be provided when students are absent. Contact the instructor if you need to reschedule either exam.

Course Calendar/Schedule

See course website for the schedule. The instructor reserves the right to modify course content and/or substitute assignments and learning activities in response to institutional, weather, or class situations.

PSU Policies and Resources

Academic Integrity & Grading Policies

- [PSU Academic Calendar](#)
- [PSU Grading System](#)
- [Student Code of Conduct](#)
- [Incomplete Grades Policy](#)

Student Support Resources

- [How to Find Help at PSU](#)
- [Access and Inclusion for Students with Disabilities](#)
- [Understanding Sexual Misconduct](#)
- [Title IX Reporting](#)
- [Religious Accommodations](#)

Technology Usage

AI Usage

The instructor will provide a custom instruction set for generative AI tools that is required for any use of generative AI on homework assignments. Any usage outside of these specified permissions constitutes a violation of PSU's Academic Integrity Guidelines.

Recording Technology Notice

We will use technology for virtual meetings and recordings in this course. Our use of such technology is governed by FERPA, the [Acceptable Use Policy](#) and PSU's [Student Code of Conduct](#). A record of all meetings

and recordings is kept and stored by PSU, in accordance with the Acceptable Use Policy and FERPA. I will not share recordings of your class activities outside of course participants, which include your fellow students, TAs/GAs/Mentors, and any guest faculty or community-based learning partners that we may engage with. You may not share recordings outside this course. Doing so may result in disciplinary action.

Turnitin

Students agree that by taking this course, all required papers may be subject to submission review for textual similarity for the purpose of detection of unoriginal writing, including plagiarism. All submitted papers will be included as source documents in the [Turnitin.com](https://turnitin.com) reference database solely for the purpose of detecting unoriginal writing, including plagiarism of such papers. Use of the Turnitin.com service is subject to the Turnitin Acceptable Use posted on the Turnitin.com website.

Zoom AI

We will be using the [Zoom AI](#) features for virtual meetings, recordings, and transcriptions in this course. Our use of these tools is governed by FERPA, [PSU's Acceptable Use Policy](#), and the [Student Code of Conduct](#). Meeting records, recordings, and transcripts will be stored securely by PSU. You may not share recordings or transcripts outside of this course without explicit instructor permission.

Google AI Studio

In this course, we may use Google AI Studio. Data entered into Google AI Studio may be used by Google to train future models or for human review and is therefore not appropriate for sensitive or personally identifiable information (e.g., information that could specifically distinguish or trace to you or others).

In Case of Emergency

- **Call 9-1-1 for Emergencies:** Immediate threat to life and safety

For issues such as a medical emergency, urgent violent incident, fire, etc., you can also call 503-725-5911

- **Call 503-725-4407 for Non-Emergencies:** [Campus Public Safety Office \(CPSO\)](#) – Non-Emergency

For non-emergency issues such as vandalism, disturbance, suspicious person, theft, suspicious packages, access control, etc.