

EE 351K - PROBABILITY AND RANDOM PROCESSES**Course Syllabus**

Summer 2022

Instructor	Prof. Pedro Santacruz
Section	75775
Lecture	MWF 1:00pm-2:30pm
Location	online
Email	pedro.santacruz@utexas.edu

TEACHING ASSISTANT

For help on class content you are invited to interact with the TA. TA email addresses are included, but your first stop for assistance should not be to send an email to the instructor or the TA. Instead, for online help with course related questions, try Piazza.

• Graduate TA:

Dan Jacobellis - danjacobellis@utexas.edu

OFFICE HOURS

Please check the Canvas Home page for office hours information.

COURSE DESCRIPTION

This course is an introduction to probability, statistics, and random processes for engineers. It will focus on the fundamentals and applications of probability models and associated computations in computer and communication systems, algorithms (e.g. web search), and logistics, etc.

This course carries the Quantitative Reasoning flag. Quantitative Reasoning courses are designed to equip you with skills that are necessary for understanding the types of quantitative arguments you will regularly encounter in your adult and professional life. You should therefore expect a substantial portion of your grade to come from your use of quantitative skills to analyze real-world problems.

PREREQUISITES

Mathematics 427J or 427K with a grade of at least C-.

ONLINE LECTURES

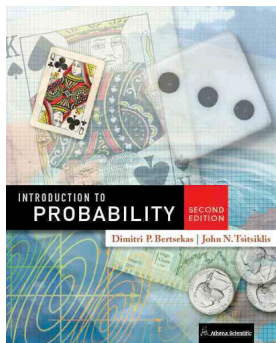
Lectures will be provided via Zoom and all students are expected to attend synchronously. Recording of every lecture will be made available within 24 hours of the lecture. In some cases, a fully recorded lecture may be posted in lieu of a live lecture. During the live lectures, students are highly encouraged to turn on their cameras, be engaged by asking questions, and answer questions asked by the professor.

Attendance is expected. Whether you come to class or not, you are responsible for keeping up with what happens in class. This applies both to the content of the class as well as to announcements about class policies, events, deadlines, etc. Students can expect a lower letter grade if they miss too many lectures.

Live lectures will be recorded; class recordings are reserved only for students in this class for educational purposes and are protected under FERPA. The recordings should not be shared outside the class.

REQUIRED TEXT

- **Introduction to Probability**, 2nd edition, 2008, Dimitri Bertsekas and John Tsitsiklis, Athena Scientific. Homeworks may be derived from the text and the associated material (e.g. instructor manual).



EVALUATION AND GRADING

The overall course grades (letter-grades) will be assigned based on the grading standard as shown below. The weights of the whole course work assignments are:

- Homework Assignments: 20%
- Midterm Exam 1: 25%
- Midterm Exam 2: 25%
- Final Exam: 30%

Final grades will be assigned based on a curve. The curved grades cannot be lower than the standard numerical criteria:

< 59	60-63	64-66	67-69	70-73	74-76	77-79	80-83	84-86	87-89	90-93	94+
F	D-	D	D+	C-	C	C+	B-	B	B+	A-	A

Final class grades will be calculated to 2 decimal places and rounded to the nearest integer. 89.49 is a B+. 89.50 is an A-. The line has to be drawn somewhere, and no special allowances will be made for students whose final average falls near, but below the cutoff. Non-academic explanations for poor class performance will have no bearing on the assignment of grades. The instructor reserves the right to lower the letter grade cutoffs for final grades; such changes will be determined only after all assignments and exams have been graded.

ASSIGNMENTS

Homework assignments will be given out weekly. Homework must be submitted online on Gradescope by the end of day and solutions will be available after the due date.

- Do NOT submit HW via email. Submit HWs on Gradescope as PDFs only
- Late submission will NOT be accepted (absolutely!)
- There are no make-up homework assignments

- You will have the option to work in groups of 2 and submit one submission for 2 students.

To get credit for your homework, submissions must be neat, clean, and must be done professionally. There are 10 homework sets. The lowest scoring homework will be dropped when computing your overall grade.

Academic Integrity Policy for this course explicitly makes the use of solutions from previous semesters or solutions found online unauthorized, and prohibits sharing solutions. Understanding **all problems** in the homework will be essential to mastering the course material.

ACADEMIC INTEGRITY

The University and the Department are committed to preserving the reputation of your UT degree. To guarantee that every degree means what it says it means, we must enforce a strict policy on academic honesty: Every piece of work that you turn in with your name on it must be yours. As an honest student, you are responsible for enforcing this policy in three ways:

1. You must not turn in work that is not yours, except as expressly permitted. **You are not allowed to copy someone else's homework solutions. You are not allowed to reference or copy previous semesters solutions.** This is plagiarism.
2. You must not enable someone else to turn in work that is not theirs. Do not share your work with anyone else. Make sure that you adequately protect all your files. Even after you have finished a class, do not share your work or published answers with the students who come after you. They need to do their work on their own.
3. You must not allow someone to openly violate this policy because it diminishes your effort as well as that of your honest classmates.

Students who violate University rules on scholastic dishonesty in assignments or exams are subject to disciplinary penalties, including the possibility of a lowered or 0 grade on an assignment or exam, failure in the course, and/or dismissal from the University. Changing your exam answers after they have been graded, copying answers during exams, or plagiarizing the work of others will be considered academic dishonesty and will not be tolerated. Plagiarism detection software may be used on the programs submitted in this class. **Any academic integrity violations will be reported to the Dean of Students following University policy** (<http://deanofstudents.utexas.edu/conduct/reportanincident.php>).

COURSE RESOURCES

★CANVAS

Course materials (e.g., the syllabus, lectures, assignments, etc.) and grades will become available via postings on this course's Canvas web page as the semester progresses. These will be the main sources of current class information: (i) class announcements, (ii) the homework and other assignments, (iii) recorded lectures. Please check this page regularly; you are responsible for everything that is posted on Canvas.

★PIAZZA

We will use Piazza (linked from the Canvas page) for a common discussion forum across all sections of this course. **We encourage you to both post and answer other student questions on Piazza.**

★GRADESCOPE

We will use Gradescope for submission of class assignments. Since you will mostly be uploading PDF files to Gradescope, you should also find a scanner/scanning application you feel comfortable with to generate appropriate PDFs from handwritten paper.

*ZOOM

We will use Zoom for Lectures and Office Hours. The appropriate links to the Zoom meetings will be available on Canvas.

STATEMENT ON STUDENT SUCCESS

Your success in this class is important to me. We will all need accommodations because we all learn differently. If there are aspects of this course that prevent you from learning or exclude you, please let me know as soon as possible. Together we will develop strategies to meet both your needs and the requirements of the course. I also encourage you to reach out to the student resources available through UT. Many are listed on this syllabus, but I am happy to connect you with a person or Center if you would like.

STATEMENT ON RIGHTS AND RESPONSIBILITIES

- You have a right to a learning environment that supports mental and physical wellness.
- You have a right to respect.
- You have a right to be assessed and graded fairly.
- You have a right to freedom of opinion and expression.
- You have a right to privacy and confidentiality.
- You have a right to meaningful and equal participation, to self-organize groups to improve your learning environment.
- You have a right to learn in an environment that is welcoming to all people. No student shall be isolated, excluded or diminished in any way.

With these rights come responsibilities: *You are responsible for taking care of yourself, managing your time, and communicating with the teaching team and with others if things start to feel out of control or overwhelming. *You are responsible for acting in a way that is worthy of respect and always respectful of others. *Your experience with this course is directly related to the quality of the energy that you bring to it, and your energy shapes the quality of your peers' experiences. *You are responsible for creating an inclusive environment and for speaking up when someone is excluded. *You are responsible for holding yourself accountable to these standards, holding each other to these standards, and holding the teaching team accountable as well.

GRADE DISPUTES AND CORRECTIONS

The grade you are given on an exam, a quiz, an assignment, or as your class grade, is final unless a concrete error has been made. Do not come to see the instructors for a better grade because you want one or you feel you deserve it. Come only if you can document a specific error in grading or in recording your scores. Errors can certainly be made in grading, especially when many students are involved. But keep in mind that errors can be made either in your favor or not. So it's possible that if you ask to have a piece of work re-graded your grade will go down rather than up.

Remember that the most important characteristic of any grading scheme is that it be fair. Keep this in mind if you're thinking of asking, for example, for more partial credit points on a problem. The important thing is not the exact number of points that were taken off for each kind of mistake. The important thing is that that number was the same for everyone. So it can't easily be changed once the grading is done and the exams or assignments have been returned.

If you are dissatisfied with a grade you receive, you must submit your complaint briefly in writing or by email, along with supporting evidence or arguments, within one week of the date that we first attempted to return the exam or assignment results to you. Complaints about grades received after the one-week deadline will be considered only if there are extraordinary circumstances for missing the deadline (e.g., student hospitalization). No new disputes will be accepted after 11:59AM two days before the course grade sheets must be turned in.

USE OF EMAIL

You cannot expect to get last-minute help on assignments by email. More generally, you cannot expect to get detailed answers to technical questions by email. Students are encouraged to discuss important matters during office hours. If you must send an email, spend extra time to ensure that you are both brief and clear. Please include your name in the email message, not just your email address. Email is a valuable tool for communicating, but be sure to use it properly, and follow the rules of good email etiquette (e.g., no flaming, spamming, etc.). Although it's easy for you to dash off an email question, it takes time to answer it. In general, you should not ask email questions to which you can find the answer somewhere else (e.g., class notes, Piazza).

LEARNING DISABILITIES

If you have a learning disability that requires special attention, either during class or during an exam, please submit the instructor a letter from the Dean of Students describing what needs to be done. You should do this during the first week of classes. (The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-4641.)

RELIGIOUS HOLIDAYS

A student who is absent from an examination or cannot meet an assignment deadline due to the observance of a religious holy day may take the examination on an alternate day, submit the assignment up to 24 hours late without penalty, or be excused from the examination or assignment, ONLY if proper notice of the planned absence has been given to the instructor at least fourteen days prior to the classes scheduled on dates the student will be absent. For religious holy days that fall within the first two weeks of the semester, notice should be given on the first day of the semester. A student who fails to complete missed work within the time allowed will be subject to the normal academic penalties.

ONLINE PRIVACY

Web-based, password-protected class sites are associated with all academic courses taught at The University. Syllabi, handouts, assignments and other resources are types of information that may be available within these sites. Site activities could include exchanging e-mail, engaging in class discussions and chats, and exchanging files. In addition, electronic class rosters will be a component of the sites. Students who do not want their names included in these electronic class rosters must restrict their directory information in the Office of the Registrar.

COURSE POLICIES CAVEAT

This document covers policies shared across the different sections of this course, but different instructors may provide additional instructions particular to their section. Make sure you follow the directions appropriate to your section.

As departmental, college and UT policies change, we reserve the right to alter the effected course policies stated herein during the course of the semester.