ENGRD 2700: Basic Engineering Probability and Statistics
Spring 2023

Course Overview

This course provides a working knowledge of basic probability and statistics and their application to engineering. Computer analysis of data and simulation are included. Topics include random variables, probability distributions, expectation, estimation, and regression.

Pre/Co-rerequisites

Two semesters of calculus (e.g., MATH 1910 and 1920), and linear algebra (MATH 2940); the latter may be taken concurrently.

Staff

Instructors

Shane Henderson (sgh9)
233 Rhodes Hall
Office Hours: Mondays & Thursdays 3pm–4pm

Marie Chazal (mc969)
202 Rhodes Hall
Office Hours: Wednesdays & Fridays 2pm-3pm

TAs

Qing Feng (qf48)	Valarie Gao (rg585)	Justus Shunza (js2996)
Ruitao Jiang (rj339)	Christian Lizardi (cal352)	
Artem Ezhov (ae329)	Ethan Igel (ei55)	Aisling Llerena (ail27)
Claire Wilson (cmw248)	Veya Zhao (wz299)	

See Canvas (`https://canvas.cornell.edu/courses/48993/`) for TA office hours.

Meetings

Lectures Tuesdays & Thursdays, 1:00pm–2:15pm, 155 Olin

Recitations

DIS 201 : Mondays, 9:40am–10:55am, 571 Rhodes
DIS 202 : Mondays, 1:00pm–2:15pm, 571 Rhodes
DIS 203 : Tuesdays, 11:25am–12:40pm, 571 Rhodes
DIS 204 : Wednesdays, 9:40am–10:55am, 571 Rhodes
DIS 205 : Thursdays, 2:45pm–4:00pm, 571 Rhodes

Attendance

Attendance and participation at lectures and recitations are **required**, except when otherwise announced. For recitation, please attend the section in which you are enrolled. Check the Grading section below for more details on how we take and grade attendance. *Recitation sections do meet during the first week of class.*

Lecture Notes, Poll Everywhere and Recommended Reading

- **Required** for Lectures
  - Lecture slides for each topic (perhaps with gaps to be filled in during class) will be posted on Canvas before we start the topic. This should be brought to class, either printed for annotation or annotated electronically. We hold the copyright on the course notes and other course materials (recitation, homework etc.), and buying, selling or reposting course materials is prohibited and illegal.
  - We will be using Poll Everywhere during the lectures. To set up Poll Everywhere, see the instructions on Canvas under Modules/Poll Everywhere. You will want to set up your phone before the first class.
- Recommended reading: Much of the material for this course is also covered in the book *Probability and Statistics for Engineering and the Sciences*, by Jay L. Devore (any edition, including an online edition is fine), which contains many examples and problems. Reserve copies of this book are available at the Uris Library.

Software

We will use Python, with Google Colab (`https://colab.research.google.com/`). No prior experience is necessary; the fundamentals will be covered in the discussion sections.

Course Website and Communication

- *Canvas*: We will use Canvas (`https://canvas.cornell.edu/courses/48993/`) for all course materials, including lecture notes, lecture recordings, recitation notes, homework assignments/solutions, announcements, exam solutions...
- *Gradescope*: We will use it as a homework submission platform. You will be able to view your homework assignments grades and comments from the grader, as well as to submit regrade requests.
- *Ed Discussion*: We will use it for announcements and online discussions. You can use it to ask and answer questions about course concepts, assignments, and logistics. Posts can be either public or private; public posts are visible to everyone, while private posts are visible only to course staff. Almost all posts should be public. Any questions having to do with your particular solution to an assignment should be private. All other posts should be public. The course staff may make your private posts public if the answer is of general interest. Ed Discussion is a class discussion forum, so please take the responsibility to respond to each others' questions and comments. It's great when students can learn from each other!

Both Gradescope and Ed Discussion are accessible from our course Canvas.

Homework

There will be about 9 homework assignments. **Homework is due at 11:59pm on Friday a week after it is given out (unless specified otherwise)**. It must be submitted **electronically** through Gradescope. There will be **no late homework** accepted for grading and you should submit the homework well in advance before the deadline.

Homework assignments are equally weighted and your lowest two scores will be dropped. This accommodates sickness, family emergency, or other unforseen circumstances without a formal process. If you miss an assignment for these reasons then it must count as a dropped assignment. We will NOT accept other requests for extensions or waivers. **You may work either alone or in pairs.**

Exam Information

Prelim: Tuesday, March 14, 2023, at 7:30pm, 155 Olin, 165 Olin, 255 Olin
Final: TBA

Exams are closed-book, but you may bring a single US-letter size sheet of paper with you to the prelim, and two US-letter size sheets of paper to the final. Calculators are allowed; graphical calculators are permitted provided that their memory is cleared before the exam. You may NOT use a computer, smart tablet or other device with a communication capability. No cell phones are allowed, even on your desk to check the time, nor on the floor near your feet. Make sure we don't see a cell phone anywhere near you in the exam. A live cellphone means you want to be removed from the room and accused of an honor code violation.

Grading

Your grade will be based on whichever of the following schemes gives you the higher grade:

	Scheme 1
1%	Course evaluation
5%	Lecture attend. & participation
4%	Recitation attend. & participation
20%	Homework
25%	Prelim
45%	Final

	Scheme 2
1%	Course evaluation
5%	Lecture attend. & participation
4%	Recitation attend. & participation
20%	Homework
70%	Final

So a strong final exam makes us forget a mediocre midterm score.

Lecture attendance and participation grade: Each Poll Everywhere question will be worth 1 point, which can be earned by simply responding to the question, whether correct or not. If you answer at least 75% of the questions, then you will earn the full 5 percentage points for Poll Everywhere responses. If you answer less than 75% of the questions, then your overall Poll Everywhere score will be reduced proportionally.

Recitation attendance and participation grade: For each recitation, half of it goes toward attendance. Your recitation TAs will mark you present. The other half of it is for participation, as assessed by the recitation TAs. You are expected to actively take part in recitation activities and discussions, Your lowest three scores will be dropped which allows, for reasonable number of absences to account for illnesses, religious holidays, job interviews, and other temporary absences.

Regrade Requests

You can make a regrade request on Gradescope for a particular problem in your assignment if you believe that there is a mistake in grading. Gradescope provides a coherent rubric for all the students and your grade will be adjusted only if your deducted points did not match your actual solution. All regrade requests should be accompanied by an explanation to justify your answer. Bear in mind that there is a regrade window period, which is **within a week after the grade is posted**. The grader will re-examine the entire homework, so your final grade can go up or down.

Peer Tutoring

One-on-one peer tutoring is available free of charge for students in the College of Engineering, as well as for those majoring in Biological & Environmental Engineering. More information can be found at `www.engineering.cornell.edu/tutoring`.

Academic Conduct

Each student in this course is expected to abide by the Cornell University Code of Academic Integrity (`https://theuniversityfaculty.cornell.edu/dean/academic-integrity/`). Any work submitted by a student in this course for academic credit should be the student's own work, with exceptions/particulars described below.

- All homework assignments are to be completed by students working either alone or in pairs.
- You may discuss homework problems at the level of a hallway discussion with other students.

If you have any questions about this policy, please do not hesitate to contact either one of the instructors.

Special Accommodations

It is Cornell policy to provide reasonable accommodations to students who have a documented disability (e.g., physical, learning, psychiatric, vision, hearing, or systemic) that may affect their ability to participate in course activities or to meet course requirements. Such students are encouraged to contact Student Disability Services (SDS) (`http://sds.cornell.edu`) and their instructors for a confidential discussion of their individual need for academic accommodations.

Personal or Academic Stress

If you are experiencing undue academic stress at any time during the semester, or need to talk to someone about a personal matter, a wide range of campus resources are available:

- Your college's Academic Advising or Student Services Office
- Cornell Learning Strategies Center (`http://lsc.cornell.edu`)
- Gannett Health Services (`www.gannett.cornell.edu`)
- Empathy Assistance and Referral Service (`http://ears.dos.cornell.edu/`)