

Course Syllabus: EE 364 – Probability

I. COURSE INFORMATION

Class location and time:

Lectures: Tu/Th 3:30-5:20pm (THH 116)

Discussion: Monday 3:00-3:50pm (THH 212)

Instructor:

Michael J. Neely (EEB 520, mikejneely@gmail.com)

Office Hours: TBA (EEB 520)

Note: When emailing, please include “EE 364” in the subject.

Teaching assistant:

1) TBA

Piazza signup

You must sign up for the Piazza course discussion page (click link below):

<https://piazza.com/uscspring2025/ee364neely>

PDF files for the course, including homework assignments, will be routinely posted on Piazza. The first problem set will also be posted on Brightspace.

Brightspace:

The gradebook and homework upload links are available on Brightspace.

<https://brightspace.usc.edu/>

Textbook:

Probability, Statistics, and Random Processes for Electrical Engineering (3rd edition), by A. Leon-Garcia.

Notes on infinity (for lecture 1):

<https://viterbi-web.usc.edu/~mjneely/docs/infinity.pdf>

Grading:

There will be problem sets (roughly one every week), a midterm, and a final, with weights:

Homework/Participation: 20%, Midterm: 40%, Final: 40%

The following minimum letter grades are guaranteed to students scoring within the specified intervals: 85-100 A, 75-85 B, 60-75 C. The above thresholds may be adjusted at the end of the semester at the discretion of the instructor. Any such adjustments will be in favor of a higher letter grade. Class participation may also factor into the homework score. For example, you may be asked to present your solution to a problem to the class. There may be occasional pop quizzes given in class, worth points toward the homework/participation score.

Special dates/times:

Exams:

- Midterm: Thursday March 6, 2025 (3:30-5:20pm) [location TBA]
- Final Exam: Tuesday, May 13, 2025 (2-4pm) [location TBA]

Holidays and breaks:

- MLK holiday: Monday Jan 20, 2025 [no class]
- President's Day: Monday Feb 17, 2025 [no class]
- Spring recess: March 16-23, 2025 [no class]

II. TOPICS

- Countable and uncountable sets, outcomes, events, probabilities
- Combinatorics, cards, dice, coins, balls and bins
- Conditional probabilities, independence
- Baye's rule
- Random variables, CDFs and PDFs
- Functions of random variables
- Expectations, iterated expectations
- Law of Large Numbers
- Central Limit Theorem and Gaussians, Statistics
- Hypothesis Testing, Minimum Mean Square Distortion
- Poisson Process
- Discrete Time Markov Chains, Simulation

A. Academic Conduct

Plagiarism (presenting someone else's ideas as your own, either verbatim or recast in your own words) is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, "Behavior Violating University Standards" <https://policy.usc.edu/scampus-part-b/>. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct>.

B. Support Systems

- Student Counseling Services (SCS) – (213) 740-7711 ? 24/7 on call Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.
<https://engemannshc.usc.edu/counseling/>
- National Suicide Prevention Lifeline – 1-800-273-8255 Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.
<http://www.suicidepreventionlifeline.org>
- Relationship and Sexual Violence Prevention Services (RSVP) – (213) 740-4900 - 24/7 on call Free and confidential therapy services, workshops, and training for situations related to gender-based harm.
<https://engemannshc.usc.edu/rsvp/>
- Sexual Assault Resource Center For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website:
<http://sarc.usc.edu/>
- Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086 Works with faculty, staff, visitors, applicants, and students around issues of protected class.
<https://equity.usc.edu/>
- Bias Assessment Response and Support Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response.
<https://studentaffairs.usc.edu/bias-assessment-response-support/>
- The Office of Disability Services and Programs Provides certification for students with disabilities and helps arrange relevant accommodations.
<http://dsp.usc.edu>
- Student Support and Advocacy – (213) 821-4710 Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic.
<https://studentaffairs.usc.edu/ssa/>
- Diversity at USC Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students.
<https://diversity.usc.edu/>
- USC Emergency Information Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible,
<http://emergency.usc.edu>
- USC Department of Public Safety – 213-740-4321 (UPC) and 323-442-1000 (HSC) for 24-hour emergency assistance or to report a crime. Provides overall safety to USC community.
<http://dps.usc.edu>