



CmpE 343: Introduction to Probability and Statistics for Computer Engineers

Fall 2019

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Office Hours: Tuesday 09:00-11:00

Time: Monday 13:00-13:50, 14:00-14:50, Friday 13:00-13:50

Location: BM A2

Textbook:

R. E. Walpole, R. H. Myers, S. L. Myers, and K. Ye, *Probability and Statistics for Engineering and Scientist*, 9th Edition, Pearson, 2016.

Course Description: Foundations of probability and statistics. Topics include elements of probability, random variables, expectation, variance, continuous and discrete distributions (e.g., Bernoulli, binomial, uniform, Gaussian, exponential, Poisson, gamma), sampling, sample statistics, point and interval estimation, hypothesis testing, regression, and computational aspects of random variable generation, sampling and estimation.

Objectives and Learning Outcomes: The objective of this course is to provide the foundations of probability theory and statistics. Upon successful completion of this course, students will have gained the necessary understanding on:

- laws of probability theory and its applications
- use of Bayes' theorem
- concept of random variables
- probability distributions and their properties
- concept of sampling
- concept of hypothesis testing
- concept of regression
- practical implementation of some of the probability and statistics concepts

Class Participation: There will not be a roll call in this class. However, students must be aware of the fact that attending classes and actively participating in discussions are required to be successful in this class. The instructor will also consider class participation while assigning final grades.

Tentative Class Schedule:

Week	Date	Topic	Homeworks
1	September 20	Introduction	
2	September 23	Elements of Probability	
2	September 27	Elements of Probability con't	
3	September 30	Random Variables	
3	October 4	Probability Distributions	
4	October 7	Expectation	HW1
4	October 11	Expectation con't	
5	October 14	Discrete Probability Distributions	
5	October 18	Discrete Probability Distributions con't	HW1 due
6	October 21	Continuous Probability Distributions	
6	October 25	Continuous Probability Distributions con't	HW2
7	October 28	No class	
7	November 1	Review Session	
8	November 4	Midterm I	
8	November 8	Simulating Random Experiments on Computer	
9	November 11	Simulating Random Experiments on Computer	HW2 due
9	November 15	Sampling	
10	November 18	Sampling con't	
10	November 22	Estimation	HW3
11	November 25	Estimation con't & Hypothesis Testing	
11	November 29	Hypothesis Testing Con't	
12	December 2	Regression	
12	December 6	Review Session	HW3 due
13	December 9	Midterm II	
13	December 13	Regression con't	
14	December 16	Final Marks	

Course Announcements: Announcements will be sent via Moodle (<https://moodle.boun.edu.tr>). Homework will be posted and collected through Moodle.

Grading:

- Midterms (2) 45%
- Homeworks (3) 15%
- Final 40%

Final grades will be assigned as follows:

Absolute Percentage	Grade
[100, 90]	4.0
(90, 80]	3.5
(80, 75]	3.0
(75, 70]	2.5
(70, 65]	2.0
(65, 60]	1.5
(60, 50]	1.0
(50, 0]	0.0

The instructor may move the thresholds down (but not up) based on the distribution of final grades.

Homework: Homework must be typed and submitted to Moodle online. No handwritten homework will be accepted. Scanning handwritten homework is also not allowed.

Late Homework and Extensions: Late homework will not be accepted. A student may ask for only one extension throughout the semester. Extension requests should be sent to the instructor via email at least **2 days** before the original deadline. Late submission rule also applies to extensions. A student cannot ask for more than **3 days** of extensions starting from the original deadline.

Makeup Exams: There will not be any makeup of the midterm exams. Follow academic calendar to apply for makeup of the final exam.

Academic Integrity: Students are expected to complete all homework assignments and exams on their own. If any source is used to do a homework, student needs to cite the reference. Cheating in homework and exams is extremely forbidden. Cheating includes copying answers from internet, a friend, or from notes in a closed-book exam. If the instructor or the teaching assistant detects any cheating in homework, the students, who got involved in cheating, will get -100 for that homework. If the student cheats during exams, disciplinary actions will be taken.

Acknowledgement: In preparation of this course, course material of CmpE 343 offered by Prof. Ethem Alpaydın and course text book were used.