



Engineering Probability and Statistics – Fall 1404

Instructors Behnam Bahrak (bahrak@gmail.com)

Lectures Saturday, Monday: 09:00-10:30, Class 1

- Syllabus**
- Set Theory & Probability
 - Combinatorics
 - Conditional Probability & Bayes' Theorem
 - Independence
 - Random Variable, PMF, CDF, Expectation, and Variance
 - Distributions & PDF
 - Functions of Random Variables
 - Sum of Independent Random Variables, MGF
 - Beta Distribution, Bayesian Estimation, and Conjugate Distributions
 - Covariance and Correlation
 - Conditional Expectation
 - MSE & LS
 - Random Sums, Random Vectors, Joint Normal, Random Processes

- Sampling and Order Statistics
- Probability Inequalities, Law of Large Numbers, and Introduction to CLT
- Estimation (Moments, MLE, MAP)
- Confidence Intervals

Announcements

Official announcements are made through eLearn only.

Calendar

The course [calendar](#) is accessible on the course page on eLearn. Please note that the calendar is subject to change and may change throughout the semester.

Grading

Your final grade out of 20 is calculated as follows:

- 2 for computer assignments
- 4 for Quizzes
- 8 for final exam
- 6 for midterm exam
- 1 for class activity

Exams

One final exam is scheduled at the times announced in the course calendar. Please note that according to the university law, your presence at the final exam is **mandatory** for the course to be recorded in your transcript.

Assignments

There will be 7 assignments throughout the course. You should do them **individually**. Each assignment includes 9 theoretical questions and 1 computational question as a practical

exercise. You do not need to upload your answers to the theoretical questions, but you must be thoroughly prepared for all of them because quizzes will be based on these questions during the first Q&A session after the assignment deadline. Therefore, you should be confident in solving the theoretical questions. After the deadline, the answer key for the theoretical questions will be uploaded. Additionally, you must submit the computational exercise for each assignment on time. Finally, the computational exercises will require an in-person presentation.

The programming language for this course is **R**, and we strongly recommend that you perform all tasks in the **Colab** environment for better organization and collaboration.

Late Policy

For every 1 day delay, there will be a 10% penalty on the Assignment final score.

You will have a total of 7 days grace period.

Cheating Policy

Your work is considered cheating if:

- You use the ready-made code available on the internet as a solution.
- You use someone else's code.
- You mistakenly upload someone else's code instead of your own!
- Copy the answers generated by Chat GPT without understanding

Penalties for cheating, especially to prevent the spread of cheating, are considered in this course as follows:

- Cheating in an assignment results in a 100% negative score for that assignment for each student involved, whether they are the cheater or the cheated upon;
- Cheating may be detected at any time during the term. If you have once performed

an unacceptable act and have not been caught immediately, it does not mean that this check will never occur.

- Cheating in exams is subject to educational regulations and may result in the subject being referred to the educational committee and ultimately the disciplinary committee.

Resources

- [Github Page](#)
- [Telegram Group](#)

Staff:



Mohammad Amanlou
([Mohammad Amanlou | LinkedIn](#))
Co-Chief Teaching Assistant



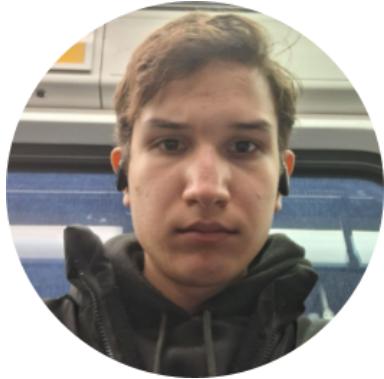
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