



ÇANKAYA UNIVERSITY
FACULTY OF ENGINEERING
Department of Industrial Engineering



IE 230
Introduction to Probability and Statistics
Spring 2025

TENTATIVE COURSE SYLLABUS

Course Code:	IE 230	Credit Hours :	(3 0 3) 5 ECTS
Students:	Civil Engineering	Semester :	Spring '25
Course Title:	Introduction To Probability And Statistics	Pre- requisites:	

Instructor: *Assistant Prof. Dr. S. Shah Sultan M. QADRI*
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Catalogue Description. Basic concepts of probability and random variables, which constitute the foundations of statistics. Discrete and continuous random variables, their distributions, and expectations. Random samples, statistics, and their distributions, estimation, hypothesis testing, inference about two populations, basic analysis of variance, and simple linear regression.

Course Objectives. The goal of this course is to establish a good statistical background for students by introducing the basic probability and statistics concepts. The course also provides a good comprehensive introduction to probability and statistical analysis by explaining the practical implications of statistical formulae.

Course Outline: The following topics will be covered

Weeks	Title
1	Introduction
2	Numerical and graphical descriptive techniques
3	Elements of probability
4	Discrete random variables and their distributions
5	Expectation of discrete random variables
6	Continuous random variables and their distributions
7	Expectation of continuous random variables
8	Random samples, statistics and their distributions
9	Estimation: Point and interval estimators
10	Hypothesis testing
11	Inference about two populations
12	Analysis of variance; one way, two way
13	Analysis of variance; one way, two way
14	Introduction to regression analysis and some applications

Textbook:

- William Navidi (2019), Statistics for Engineers and Scientists, 5th edition, McGraw-Hill.
- Jay L. Devore (2008), Probability and Statistics for Engineering and the Sciences, 7th edition, Duxbury Pr.

Reference Books:

- J. E. Freund (2006), Modern Elementary Statistics, 12th edition, Prentice Hall.
- D.C. Montgomery, G.C. Runger, and N. F. Hubele (2004), Engineering Statistics, 3rd eds., John Wiley & Sons, Inc: New York
- E.K. Bowen and M. K. Starr (1982), Basic Statistics for Business and Economics, 3rd edition, McGraw-Hill.
- Berenson, M., Levine, D., Szabat, K. A., & Krehbiel, T. C. (2012). Basic business statistics: Concepts and applications.

Teaching Method:-

The teaching methodology will be based on enabling the students to understand and apply the concepts and procedures in each topic mentioned in the above section. Due to unfortunate circumstances, the mode of education is not clear. So it will be announced later whether the classes will be online or face-to-face.

Recommendation:

During the lectures, it would be difficult for the instructor to repeat the concepts that have been taught in the previous lectures. In order to better understand the lecture material and participate in the class discussion, students are recommended to read the previous lecture material before the class. In that way, students will find lectures more interesting and will get more benefit from discussions if they are well-prepared.

Tutorials:

In addition to the regular lectures, there will be tutorial sessions conducted in the classroom/laboratory by the assistant, according to the perceived need. During these hours the assistant will do extra example problems and give tutorials on computer applications and show videos related to the lecture materials.

Home Work:

Students should work on two separate sets of assigned questions in order to get prepared for midterm and final exams. Students should form groups of **at most 3 students** to perform homeworks.

Exams:

Exams will cover material from lectures and tutorials and require advance study to master concepts, procedures, and techniques. To discourage cramming, no questions will be answered during the exam week.:

Midterm Exam: There will be one midterm examination that covers all the material up to the date of the examination.

Final Exam: The Final Examination will cover all the material covered post-midterm and follow the same format.

Make-up Exams:

A make-up exam will only be offered to students who missed the **midterm or final exam** and provided adequate documentation for the reason of their absence.

Academic Dishonesty:

Unsuitable behavior for university students will not be tolerated and may result in formal disciplinary action. This includes having someone else take exams on your behalf, misrepresenting work, cheating, aiding others in cheating, or disrupting class discipline.

Grading Policy:

Although the student's overall grade will be based on the general assessment of the instructor, the following percentages may give an idea about the relative importance of various assessment tools.

Attendance (Conditional*)	10 %
Homework (2)	20 %
Midterm Exam	30 %
Final Exam	40 %
TOTAL	100 points

Attendance Policy:

*Attendance (10% of total grade)

Attendance is a significant component of the course grade and is subject to the following conditions:

- 1. Minimum Attendance Requirement:** Students must attend at least **11** out of **14** lectures to qualify for attendance points.
- 2. Tardiness:** Arriving more than **10 minutes** late to a lecture will result in a mark of 'late', which equates to an absence for that day.
- 3. Timetable Clashes:** Students are responsible for managing their schedules to avoid conflicts. Attendance will not be accommodated for students attempting to attend multiple lectures simultaneously, and such instances will result in an absence.
- 4. Leaving Early:** Students who leave early during the three-hour lecture will be considered absent for the entire duration.
- 5. In-Class Conduct:**
 - **Sleeping:** Students found sleeping during lectures will be marked absent. Those feeling unwell should seek medical attention, but medical certificates will not be considered for excusing absences.
 - **Mobile Phone Use:** The use of mobile phones is strictly prohibited during lectures. Violations will result in the student being marked absent for the day.
 - **Photography:** Taking pictures of the lecture or board is strictly prohibited to encourage active note-taking and participation.

NA Grading:

Not attending **both the Final Exam and Midterm Exam without a valid excuse** might lead to an "NA" grade.

NOTE THAT EVERYTHING ON THIS SYLLABUS IS SUBJECT TO CHANGE. STUDENTS WILL BE NOTED ABOUT SIGNIFICANT CHANGES. INSTRUCTOR RESERVES THE RIGHT TO MODIFY THESE PERCENTAGES IN CASE HE FINDS IT NECESSARY