IE 228 Engineering Statistics (4 0 4) (ECTS: 6)

2024-2025 Spring - Syllabus

Instructor: Ertan Yakıcı
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Office Hour: TBD

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Catalog Description:

Introduction to statistics, data and sources of data, descriptive statistics, review of random variables, binomial, normal distributions and central limit theorem, point estimation, sampling distributions, interval estimation, sample size determination, prediction and tolerance interval, hypothesis testing for single, two and more population parameters, sample size determination for hypothesis testing, independence test for categorical data, chi-square goodness-of-fit test, simple linear regression, multiple linear regression.

Text Book:

- William Navidi, Statistics for Engineers and Scientists, 5th Edition, McGraw-Hill, 2020

Supplementary Texts:

- D.C. Montgomery and G.C. Runger (2014), Applied Statistics and Probability for Engineers, John Wiley & Sons, Inc., New York.

Tentative Course Schedule:

Week	Topic
1	Introduction, Sampling, Data Types (1.1 from the book)
2	Summary Statistics (1.2 from the book)
3	Tables and Graphical Summaries (1.3 from the book)
4	Review of Binomial and Normal Distribution (4.2 & 4.5 from the book)
5	Point Estimation; Probability Plots; Central Limit Theorem (4.9, 4.10, & 4.11 from the book)
6	Interval Estimation for Single Sample (5.1, 5.2, 5.3 & 5.8 from the book)
7	Interval Estimation for Two Samples; Prediction & Tolerance intervals (5.4, 5.5, 5.6, 5.7 & 5.9 from the book)
8	Hypothesis Testing for Single Sample (6.1, 6.2, 6.3 & 6.4 from the book)
9	Hypothesis Testing for Two Samples (6.5, 6.6, 6.7 & 6.8 from the book)
10	Tests for the Variances; Fixed-Level Testing; Contingency Tables and Tests with Categorical Data, Chi-Square Goodness of Fit Test (6.11, 6.12 & 6.10 from the book)
11	One Factor Experiments (9.1 from the book)
12	Correlation and Simple Linear Regression (Chapter 7.1 & 7.2 from the book)
13	Correlation and Simple Linear Regression (Chapter 7.3 & 7.4 from the book)
14	Multiple Linear Regression (Chapter 8 from the book)

Class meeting hours:

Sec. 1	Mon. 09:20-11:10 (LB05), Wed. 11:20-13:10 (LB05)
Sec. 2	Mon. 11:20-13:10 (LB05), Wed. 09:20-11:10 (LB05)

Tentative Grading:

% 25 Homeworks (2 HWs)

% 35 Midterm Exam

% 40 Final Exam

Letter grades will be mainly based on the catalogue grading system described in Çankaya University regulations.

Note that the instructor reserves the right to modify these percentages in case it is necessary.

Academic Integrity: All students admitted to Çankaya University are expected to act honestly and ethically. Therefore, any form of dishonesty will not be tolerated. Every student should declare his/her understanding and belief in the Honor Code stated by the department for the examinations and assignments.

Make-up Exams: If a student misses midterm exam or final exam and has a valid excuse for his/her absence, a make-up exam will be given. ***A make-up exam may have a different format and may contain different type of questions than the regular exam***.

Attendance: Attendance will be taken via webonline. It is strongly recommended to attend all the lecture hours to understand the course material.

Conditions that may lead to the letter grade "NA":

Any of the following may lead to letter grade NA.

- If a student fails to take the midterm exam or the final exam will receive the letter grade NA.
- Less than 45% attendance to the lectures.
- If you can get a passing overall grade which is greater than or equal to the letter grade **DD**, this 45% minimum attendance requirement is dropped.

Course Website:

- Communication will be made through course page at http://webonline.cankaya.edu.tr
- Announcements, lecture notes, grades, and other information will be uploaded to course page.
- Every student should check the course page regularly. Students are also responsible for printing the course material (lecture notes, exercises, etc.) from the course web page.

Exams and Lab Assignments:

- There will be a midterm exam, a final exam, and 2 homework assignments in this course.
- Further details about midterm exam, lab/homework assignments, and final exam will be given later.

NOTE THAT EVERYTHING ON THIS SYLLABUS IS SUBJECT TO CHANGE. STUDENTS WILL BE NOTED ABOUT ANY CHANGE.