

UGİ 104– APPLIED STATISTICS

2020-2021 / SPRING (2020-2)

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The announcements will be listed on my web page.

The course materials will be posted <https://uzak.etu.edu.tr/login/index.php>.

Office No : 353,

Office Tel: +(90) 312 2924216,

Class Hours :

Monday 08:30-10:20 (zoom link:),

Friday 08:30 -10:20 (zoom link:),

Office Hours : By appointment

(Do not forget to write in the subject of your e-mail messages “UGİ 104-FirstName-LastName”. Messages without this subject may get lost in the pile.)

Course Content

- The course introduces the main concepts of probability theory and statistics including
 - descriptive statistics and graphical analysis,
 - probability theory,
 - random variables, sampling, sampling distributions,
 - interval estimation and hypothesis testing.
- The emphasis will be on applications and the intuition of statistical thinking.
- Students will learn how to utilize statistical software (Stata) for applications.

Course Objectives:

- Upon completing the course, the students should:
 - be able to identify different types of data ,
 - be able to plot different types of graphs,
 - be able to generate descriptive statistics of the data,
 - have gained a basic understanding of probability and random variables,
 - have learned the basic properties of the commonly used discrete and continuous distributions,
 - and have learned the basics of statistical estimation (point and interval estimation) and statistical testing of hypotheses.

Expectations/Pre-requisites:

- Although the course has no formal prerequisites, it uses mathematical notation to express concepts. Therefore, the students should be able to properly use mathematical notation and they are expected to know basic algebra.
- During the semester, the students are expected to follow the lectures, participate in the assignments and in-class discussions, and do their best to master the material.

Textbook:

- P. Newbold, W.L. Carlson, B. Thorne: Statistics For Business and Economics, Sixth Edition, Prentice Hall.
- Students are highly recommended to read the textbook.
- You can also use any undergraduate-level textbook in Statistics.

Software: Excel, Stata16

Lecture Notes: Lecture notes will be posted online.

Grading: The final grade will be based on

- attendance (%10)
- problem sets or quizzes (%10 in total),
- a mid-term exam(%40),
- and a final exam (%40).

Problem Sets: There will be problem sets (PS) or Quizzes throughout semester. Problem sets will be submitted by student groups (not more than three) by email to the instructor. Each PS will have 3-4 questions and several Stata exercises. Late submissions will not be accepted. PSs will be posted online in advance.

Course plan

Part 1: Descriptive Statistics

Week 1: No Class on 18 January 2021

Week 1-2: Introduction and using graphs to describe data

- Time plots, histograms, distribution, scatterplots.

Week 2: Numerical measures (mean, median, variance, quantiles) to describe data

Week 3: Correlation and regression with single variable

Part 2: Inferential Statistics

Week 4: Probability methods: Introduction

Week 5: Discrete probability distributions

Week 6: Continuous probability distributions

MIDTERM EXAM

Week 7: Joint and conditional probability distributions

Week 8: Sampling distributions

Week 9: Confidence interval estimation

Week 10: Hypothesis testing

Week 11: Multiple regression analysis

Week 12: Statistical communication and summary

FINAL EXAM

Class Rules:

1. Attendance: Attendance to at least 70% of lectures is compulsory. (Students whose absenteeism is >30% get the letter grade "U" and cannot take the final exam or its make-up.) Also, students are required to come to class before lecture starts and leave class after the lecture ends so as not to disturb other students.

2. Disruptive Behaviors: Disruptive behaviors, including excessive talking, arriving late to class, sleeping, reading newspapers, using unauthorized electronic devices during class, are not permitted. Students with repetitive and disruptive behavior may be removed from class. In case the disruption continues and prohibits the continuation of class, the lecture will be ended, and the students will be responsible from learning all material that was scheduled to be covered during the (uncompleted) lecture.

3. Plagiarism, Cheating and Collusion: Students are expected to refrain from giving or receiving aid in examinations, or in assignments. Furthermore, they are expected to do their share and take an active role in seeing to it that others as well as themselves obey these rules. Plagiarism and cheating are serious issues; they will not be tolerated. Grade penalty will be issued (zero on exam or assignment) should you be found responsible for academic dishonesty. Further punishment will be given according to the disciplinary rules of the university. (Plagiarism is defined as the use, without giving reasonable and appropriate credit to or acknowledging the author or source, of another person's original work, whether such work is made up of code, formulas, ideas, language, research, strategies, writing or other forms.)

4. Exams: The exams will cover all material that is taught during the class or assigned to students.

5. Make-up Exams: It is best for the students to take exams on time. A make-up will be given under special circumstances and only if the "Fakülte Yönetim Kurulu" approves of the student's excuse. Make-up exams will be harder than regular exams. The make-up exam will be given at the end of the semester and it will cover all topics discussed during the semester. There will be no make-up of make-up exams.

6. Grade Changes: All students have the right to view their graded exams and assignments. At the end of the semester, a grade change will be made only in the unlikely case of an error of fact, such as a wrong entry to the computer or a summation mistake. Any other requests for a higher grade will be automatically denied.