

School of Engineering and Natural Sciences / Industrial Engineering (English)

2022 - 2023 Academic Year

APPLIED STATISTICS

Syllabus

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
APPLIED STATISTICS	IND2249070	Spring Semester	3+0	3	6
Prerequisites Courses	OLASILIK VE RASSAL DEĞİŞKENLER				
Recommended Elective Courses					
Language of Instruction	English				
Course Level	First Cycle (Bachelor's Degree)				
Course Type	Required				
Course Coordinator	Assoc.Prof. Melis Almula KARADAYI				
Name of Lecturer(s)	Assoc.Prof. Melis Almula KARADAYI				
Assistant(s)					
Aim	This course aims to provide basic statistical techniques in order to collect, analyze and interpret data with emphasis on engineering applications.				
Course Content	This course contains; Introduction to Statistics and Data Analysis, Sampling Distributions, Sampling Distributions and Estimation, Confidence Intervals- Single Population, Hypothesis Testing- Single Population, Confidence Intervals- Two Populations, Hypothesis Testing- Two Populations, MIDTERM EXAMINATION, Hypothesis Testing- Two Populations, Introduction to Correlation and Regression Analysis, Linear Regression Models, Linear Regression Models, Multiple Regression Models, Multiple Regression Models.				
Course Learning Outcomes			Teaching Methods	Assessment Methods	
Construct and interpret graphical and/or numerical summaries of data.			1, 2, 4	A, C	
Distinguish between a population and a sample.			1, 2, 4	A, C	
Construct and interpret confidence intervals for population characteristics			1, 2, 4	A, C	
Construct and interpret hypothesis tests for population characteristics.			1, 2, 4	A, C	
Carry out correlation and regression procedures and interpret the results.			1, 2, 4	A, C	
Use statistical package SPSS to carry out the statistical procedures discussed during the semester.			1, 13, 2, 4	A, C	
Teaching Methods	1: Lecture, 13: Experiment / Laboratory, 2: Question - Answer, 4: Exercise, Practice				
Assessment Methods	A: Written Exam, C: Homework				
Lecture Schedule					
Sequence	Topics	Preliminary Preparation			
1	Introduction to Statistics and Data Analysis				
1	Sampling Distributions				
3	Sampling Distributions and Estimation				
4	Confidence Intervals- Single Population				
5	Hypothesis Testing- Single Population				
6	Confidence Intervals- Two Populations				
7	Hypothesis Testing- Two Populations				
8	MIDTERM EXAMINATION				
9	Hypothesis Testing- Two Populations				
10	Introduction to Correlation and Regression Analysis				
11	Linear Regression Models				
12	Linear Regression Models				
13	Multiple Regression Models				
14	Multiple Regression Models				
Evaluation Methods		Weight(%)			
Midterm Exam		30			
General Exam		70			

Resources
Walpole, Myers, Myers, and Ye. "Probability and Statistics for Engineers and Scientists", Pearson.
Douglas C. Montgomery & George C. Runger. "Applied Statistics and Probability for Engineers", Wiley