

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

2023 - 2024 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)	Prof.Dr. Afgan ASLAN				
Assistant(s)	Res. Asst. Ahmed ŞENGİL (aasengil@medipol.edu.tr)				
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 I,Hypothesis Testing- Single Population I,Confidence Intervals- Two Populations I,Confidence Intervals- Two Populations II,Hypothesis Testing- Two Populations I,Hypothesis Testing- Two Populations II,Introduction to Correlation and Regression Analysis,Linear Regression Models,Linear Regression Models,Multiple Regression Models,Advanced Topics in Multiple Regression Models.				
Course Learning Outcomes			Teaching Methods	Assessment Methods	
Construct and interpret graphical and/or numerical summaries of data.			16, 9	A	
Distinguish between a population and a sample.			14, 16, 9	A, G	
Construct confidence intervals for population characteristics			12, 14, 16, 9	A, E, G	
Construct hypothesis tests for population characteristics.			12, 16, 9	A, E, G	
Carry out correlation and regression analysis			12, 16, 9	A, E, G	
Use statistical package SPSS to carry out the statistical procedures discussed during the semester.			11, 9	A, E	
Teaching Methods	11: Demonstration Method, 12: Problem Solving Method, 14: Self Study Method, 16: Question - Answer Technique, 9: Lecture Method				
Assessment Methods	A: Traditional Written Exam, E: Homework, G: Quiz				
Lecture Schedule					
Sequence	Topics	Preliminary Preparation			
1	Introduction to Statistics and Data Analysis	Walpole, Myers, Myers, and Ye. "Probability and Statistics for Engineers and Scientists", Pearson, CHAPTER 1			
2	Sampling Distributions	Walpole, Myers, Myers, and Ye. "Probability and Statistics for Engineers and Scientists", Pearson, CHAPTER 8			
3	Sampling Distributions and Estimation	Walpole, Myers, Myers, and Ye. "Probability and Statistics for Engineers and Scientists", Pearson, CHAPTER 8			
4	Confidence Intervals-Single Population I	Walpole, Myers, Myers, and Ye. "Probability and Statistics for Engineers and Scientists", Pearson, CHAPTER 9			
5	Hypothesis Testing- Single Population I	Walpole, Myers, Myers, and Ye. "Probability and Statistics for Engineers and Scientists", Pearson, CHAPTER 10			
6	Confidence Intervals- Two Populations I	Walpole, Myers, Myers, and Ye. "Probability and Statistics for Engineers and Scientists", Pearson, CHAPTER 9			
7	Confidence Intervals- Two Populations II	Walpole, Myers, Myers, and Ye. "Probability and Statistics for Engineers and Scientists", Pearson, CHAPTER 9			
8	Hypothesis Testing- Two Populations I	Walpole, Myers, Myers, and Ye. "Probability and Statistics for Engineers and Scientists", Pearson, CHAPTER 10			
9	Hypothesis Testing- Two Populations II	Walpole, Myers, Myers, and Ye. "Probability and Statistics for Engineers and Scientists", Pearson, CHAPTER 10			
10	Introduction to Correlation and Regression Analysis	Walpole, Myers, Myers, and Ye. "Probability and Statistics for Engineers and Scientists", Pearson, CHAPTER 11			
11	Linear Regression Models	Walpole, Myers, Myers, and Ye. "Probability and Statistics for Engineers and Scientists", Pearson, CHAPTER 11			
12	Linear Regression Models	Walpole, Myers, Myers, and Ye. "Probability and Statistics for Engineers and Scientists", Pearson, CHAPTER 11			
13	Multiple Regression Models	Walpole, Myers, Myers, and Ye. "Probability and Statistics for Engineers and Scientists", Pearson, CHAPTER 12			
14	Advanced Topics in Multiple Regression Models	Lecture Notes			
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					