



MARMARA UNIVERSITY - FACULTY OF ENGINEERING

2017-2018Spring

STAT2053 Introduction to Probability and Statistics

COURSE DESCRIPTION FORM

Offering Department		Department of Computer Engineering		Undergraduate must course (4th semester)						
Course Code		STAT2053								
Course Name		Introduction to Probability and Statistics								
Language of Instruction		English								
ECTS		4								
Contact Hours		Theoretical (T): 3			Practice (U):			Laboratory(L):		
Pre-requisites		-								
Instructor		Name		Müjdat Soytürk						
		E-mail		mujdat.soyturk@marmara.edu.tr						
Course Materials		Mandatory		Mendenhall, Beaver, Beaver, Introduction to Probability and Statistics, 14th Edition, Duxbury Press, 2013.						
		Recommended		Jay L. Devore, Probability and Statistics for Engineering and the Sciences, 7th Edition, Thomson / Duxbury Press, 2008. Levine, Ramsey and Smith, Applied Statistics for Engineers and Scientists, Prentice Hall, 2001.						
Course Objectives		Introducing the basic concepts of probability and statistics. Teaching the probability models and statistical methods that will be needed in their advanced coursework. Enabling analyzing the data and perform hypothesis testing.								
Course Content		Introduction to Probability, Basic Definitions, Axioms of Probability and Combinatorial Concept; Describing Data With Graphs; Describing Data With Numerical Measures, Describing Bivariate Data; Conditional Probability and Independence; Probability and Probability Distributions; Discrete Random Variables and Probability Distributions; Continuous Random Variables and Probability Distributions; The Normal Probability Distribution; Jointly Distributed Random Variables; Expected Values, Covariance and Correlation; Sampling Distributions; Large-Sample Estimation; Large-Sample Tests of Hypotheses; Inference From Small Samples.								
Learning Outcomes		LO1		Describing the basic concepts of probability, and describing discrete and continuous distributions.						
		LO2		Calculating the probabilities of events having one or more random variables.						
		LO3		Visualization of data distribution with graphs.						
		LO4		Analyzing the data statistically.						
		LO5		Performing Test of Hypothesis on the sample with the use of statistical methods.						
Program Outcomes				LO1	LO2	LO3	LO4	LO5	LO6	LO7
PO1		Adequate knowledge in mathematics, science (a) and computer engineering subjects (b) pertaining to the relevant discipline (1); ability to use theoretical and applied information in these areas to model and solve engineering problems (2).			1a					
PO2		Ability to identify, formulate, and solve complex engineering problems (a); ability to select and apply proper analysis and modelling methods for this purpose (b).					b	b	b	
PO12		Knowledge of advanced mathematics subjects including differential equations, integral calculus (a), linear algebra (b), statistics and probability (c), and discrete mathematics (d).			c	c	c	c	c	
PO13		Knowledge of mathematics, basic sciences (a), computer science (b) and engineering sciences (c) required for the design and analysis of complex electrical and electronic devices, software and systems including hardware and software.			a	a	a	a	a	
Subjects (Knowledge, Skills and Behaviours), Contributions of Subjects to Learning Outcomes, Assessment Methods	No	Week	Subjects	LO1	LO2	LO3	LO4	LO5	LO6	LO7
	S1	1-2	Introduction to Probability, Describing Data With Graphs, Describing Data With Numerical Measures, Expected Values		Q	H				
	S2	3-4	Describing Bivariate Data, Covariance and Correlation, Conditional Probability and Independence		MF, Q					
	S3	5-7	Probability and Probability Distributions, Discrete Random Variables and Probability Distributions, Continuous Random Variables and Probability Distributions, The Normal Probability Distribution	MF, Q	MF	H	MF, Q, H			
	S4	8-10	Sampling Distributions, Large-Sample Estimation				MF, Q, H			

	S5	11-12	Tests of Hypotheses				MF, Q											
	S6	13-14	Inference From Small Samples				MF, Q											
Assessment Methods and Weights	No	Type	Weight	Implementation Rule		Make-up Rule												
	MF	Midterm, Final	70%	One written midterm and one final exam. In the exams, books and any course materials are not allowed to use. Use of a calculator is allowed.		Marmara University regulations will be followed for make-up exams.												
	Q	Quiz	21.6%	During the course, quizzes with test and / or classic questions are made. 6 quizzes are held. Use of a calculator is allowed.		Quiz score zero is taken for the quiz not entered without excuse. For the excuse that is valid according to Marmara University Makeup Exam Rules, makeup exam is taken as an excuse (appropriate medical report or assignment letter), the quiz average is calculated according to the quizzes taken.												
	H	Homeworks	8.4%	The deadline for the assignment is two weeks after the assignment. Late delivery is not accepted. Zero is taken from the unreported assignment. Statistics tools / programming software are used in the assignments. At least 2 assignments are given.		-												
	TOTAL			100%														
Determining Letter Grades	<ul style="list-style-type: none"> The letter grades will be determined based on the midterm and final exams, quizzes and homeworks. In order to determine the letter grade, a curve or catalog based method will be followed based on the total average scores of the students. The final exam score and the total average score of the student must be at least 35 to pass the course. According to Marmara University Undergraduate regulations, the weight of the final exam must be at least 40 out of 100 																	
	<table border="1"> <thead> <tr> <th>Assessment</th> <th>Midterm</th> <th>Quizzes</th> <th>Homeworks</th> <th>Final</th> <th>TOTAL</th> </tr> </thead> <tbody> <tr> <td>Weight</td> <td>30</td> <td>21.6</td> <td>8.4</td> <td>40</td> <td>100</td> </tr> </tbody> </table>							Assessment	Midterm	Quizzes	Homeworks	Final	TOTAL	Weight	30	21.6	8.4	40
Assessment	Midterm	Quizzes	Homeworks	Final	TOTAL													
Weight	30	21.6	8.4	40	100													
Teaching Method, Student Work Load	Time Applied by the Instructor																	
	No	Method	Explanation				Saat											
	1	Lectures	Lectures are given in class using the board or via presentations. Example questions are solved to enhance the concepts.				14x3=42											
	2	Problem Session/ Practice	Problems related to the course topics are solved on the board.															
	3	Laboratory	Experiments are done in the laboratory or theoretical concepts covered during the lectures are practiced using computer exercises.															
	4	Interactive Courses	Questions are asked to students during lectures and they are encouraged to guess the answers (peer learning is also in this category)															
	5	Field Work	Students attend activities outside the campus.															
	6	Midterm	Midterm exam is given during the midterm week.				2											
	7	Final	Final exam is given during the final exam week.				2											
	Estimated Time to be Allocated by a Student																	
	8	Project	The students carry out research about the problem given in the project, design and implement their solution and prepare a report.															
	9	Homeworks	The students solve the problems given as homework.				2x9=18											
	10	Pre-class learning of Course Material	The students study and learn the new subjects from course materials.															
11	Review of Course Material	Students review the course subjects from course materials to prepare for the exams and homeworks.				34												
12	Office Hour	Students ask questions to the instructor or the assistant during office hours.				2												
TOTAL						100												
Academic Honesty	Violations of scholastic honesty include, but are not limited to cheating, plagiarizing, fabricating information or citations, facilitating acts of dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students.																	
	In case academic dishonesty is observed, the first authority is the instructor of the course. The instructor may decide to give the student zero for the homework(s)/lab(s)/exam(s), give the letter grade FF, or may take disciplinary action.																	