İZMİR UNIVERSITY OF ECONOMICS

Faculty of Business
Business Administration
MATH 280 - Introduction to Probability and Statistics

COURSE INTRODUCTION AND APPLICATION INFORMATION

Course Name	Code	Semester	Theory (hour/week)	Application/Laboratory (hour/week)	Local Credits	ECTS
Introduction to Probability and Statistics	MATH 280	Fall	2	2	3	6

Prerequisites	None

Course Language	English
Course Type	Required
Course Level	-
Course Coordinator	* Doç. Dr. Gözde YAZGI TÜTÜNCÜ
Course Lecturer(s)	* Doç. Dr. Gözde YAZGI TÜTÜNCÜ
Course Assistants	* Araş. Gör. Necla KAYAALP
Course Objectives	To provide the fundamental concepts of Probability and Statistics with applications of business and economic problems. The course illustrates many examples of common statistical methods for students who would like to focus on information intensive fields.
Course Learning Outcomes	The students who succeeded in this course; * The students who succeeded in this course; * will be able to create and use graphs for categorical and numerical data, and to describe relationships between variables * will be able to use measures of central tendency, variation, and shape, and use population summary measures * will be able to use mean and standard deviation for discrete and continuous random variables and apply some special probability distributions * will be able to assess outcomes and events in a probability experiment, apply basic rules of probability and Bayes' Theorem * will be able to use confidence intervals

	* will be able to use and apply hypothesis test for one and two populations that are normally distributed * will be able to analyze simple linear regression
Course Content	Probability, Discrete and Continuous random variables with their probability distributions and expectations, Sampling distributions, Confidence interval estimation: one and two populations, Hypothesis Tests of one and two populations, Simple regression analysis

WEEKLY SUBJECTS AND RELATED PREPARATION STUDIES

Week	Subjects	Related Preparation
1	Decision making in an uncertain environment. Describing data and summarizing descriptive relationships. Classification of variables.Graphical methods for summarizing data	Statistics and Business Economics by P. Newbold W. L. Carlson, B. Thorne, 8/e, Prentice Hall: 1.1-1.6 (21:58)
2	Measures of central tendency and location. Measures of variability. Measures of relationships between variables	Statistics and Business Economics by P. Newbold W. L. Carlson, B. Thorne, 8/e, Prentice Hall: 2.1-2.2 (59:80)
3	Random experiment, outcomes, events. Probability and its postulates. Probability rules.	Statistics and Business Economics by P. Newbold W. L. Carlson, B. Thorne, 8/e, Prentice Hall: 3.1-3.3-3.5 (93:121,132:139)
4	Bayes' Theorem. Conditional probability and independence.	Statistics and Business Economics by P. Newbold W. L. Carlson, B. Thorne, 8/e, Prentice Hall: 4.1-4.3 (146:158)
5	Random variables. Probability distributions for discrete random variables. Properties of discrete random variables.	Statistics and Business Economics by P. Newbold W. L. Carlson, B. Thorne, 8/e, Prentice Hall: 4.4-4.6 (159:175)
6	Binomial, Hypergeometric and Poisson distribution.	Statistics and Business Economics by P. Newbold W. L. Carlson, B. Thorne, 8/e, Prentice Hall: 4.4-4.6 (159:175)
7	Continuous random variables and their properties. Uniform, Normal and Exponential distributions.	Statistics and Business Economics by P. Newbold W. L. Carlson, B. Thorne, 8/e, Prentice Hall: 5.1-5.5 (197:227)

8	Sampling distributions: distributions of the sample mean, sample proportions and sample variance	Statistics and Business Economics by P. Newbold W. L. Carlson, B. Thorne, 8/e, Prentice Hall: 6.1-6.7 (236:283)
9	Confidence interval estimation for the mean, variance and proportions.	Statistics and Business Economics by P. Newbold W. L. Carlson, B. Thorne, 8/e, Prentice Hall: 7.1-7.7,8.1-8.3 (284:318,328:341)
10	Hypothesis tests: basic concepts, hypothesis tests for the sample mean and sample proportion, p-value.	Statistics and Business Economics by P. Newbold W. L. Carlson, B. Thorne, 8/e, Prentice Hall: 9.1-9.4 (346:367)
11	Hypothesis tests for two populations: independent and dependent samples.	Statistics and Business Economics by P. Newbold W. L. Carlson, B. Thorne, 8/e, Prentice Hall: 10.1-10.3 (385:402)
12	Linear regression: linear models, least squares coefficient estimators, the explanatory power of a linear regression equation, analysis of variance, coefficient of determination.	Statistics and Business Economics by P. Newbold W. L. Carlson, B. Thorne, 8/e, Prentice Hall: 11.1-11.4 (417:437)
13	Hypothesis test and confidence intervals for the population regression slope.	Statistics and Business Economics by P. Newbold W. L. Carlson, B. Thorne, 8/e, Prentice Hall: 11.1-11.4 (417:437)
14	Hypothesis test for the population slope using F distribution. Correlation analysis and hypothesis tests for the correlation coefficient.	Statistics and Business Economics by P. Newbold W. L. Carlson, B. Thorne, 8/e, Prentice Hall: 11.5-11.7 (438:455)
15	Review of thes semester	
16	Review of thes semester	

SOURCES

Course Notes / Textbooks	Statistics and Business Economics by P. Newbold W. L. Carlson, B. Thorne; 8/e, Prentice Hall . Chapters 1,2,3,4,5,6,7,8,9,10,11.
References	Essentials of Contemporary Business statistics by T.A. Williams, D.J. Sweeney, D.R. Anderson,2007, Thomson

EVALUATION SYSTEM

Semester Requirements	Number	Percentage of Grade
Attendance/Participation	-	-
Laboratory	-	-
Application	-	-
Field Work	-	-
Special Course Internship (Work Placement)	-	-
Quizzes/Studio Critics	3	6
Homework Assignments	-	-
Presentation/Jury	-	-
Project	-	-
Seminar/Workshop	-	-
Midterms/Oral Exams	2	60
Final/Oral Exam	1	34
Total	6	100

PERCENTAGE OF SEMESTER WORK	**7**	**65**
PERCENTAGE OF FINAL WORK	**1**	**35**
Total	8	100

COURSE CATEGORY

Course Category	Core Courses	
	Major Area Courses	
	Supportive Courses	
	Media and Managment Skills Courses	
	Transferable Skill Courses	

THE RELATIONSHIP BETWEEN COURSE LEARNING OUTCOMES AND PROGRAM QUALIFICATIONS

#	Program Qualifications / Outcomes	* Level of Contribution				
		1	2	3	4	5
1	To be able to solve problems with analytical and holistic viewpoint, and develop strategic thinking as a principle in the field of business administration					
2	To evaluate the knowledge acquired in the field of business management with a critical orientation, and adopt life-long learning approach, update the existing knowledge and acquire new ones on a continuing base					
3	To analyze the knowledge acquired in the field of business management at organizational level, and interpret and present the findings and solutions to the problems in written and oral formats					
4	To interpret business concepts and philosophies at the national and international levels, and apply them after conducting cross disciplinary and comparative analysis					
5	To know the quality and productivity principles of business life and practice these in real-life					
6	To think with an innovative/creative motive, and apply the academic knowledge not only to similar occasions but also to new and unconventional circumstances					
7	To acquire leadership qualifications and apply them successfully					
8	To take responsibilities as an individual and team member, be open minded, self-confident and open to criticism, and work efficiently and effectively					
9	To describe the economic situation of the region, and apply the academic knowledge to real life situations by thinking locally and globally					
10	To embrace the necessity of business ethical values, and possess and practice social, scientific and ethical values at the data collection, evaluation and dissemination and application stages					
11	To keep abreast of current news on business administration and communicate with one's peers in a foreign language (European language portfolio global scale, level B1)					
12	To gain intermediate level of proficiency in a second foreign language					
13	To effectively use computer programs, and information and communication technologies in the field of business administration					

*1 Lowest, 2 Low, 3 Average, 4 High, 5 Highest

ECTS / WORKLOAD TABLE

Activities	Number	Duration (Hours)	Total Workload
Course Hours (Including Exam Week: 16 x Total Hours)	16	4	64
Laboratory	-	-	-
Application	-	-	-
Special Course Internship (Work Placement)	-	-	-
Field Work	-	-	-
Study Hours Out of Class	10	2	20
Presentations / Seminar	-	-	-
Project	-	-	-
Homework Assignments	-	-	-
Quizzes	3	5	15
Midterms / Oral Exams	2	15	30
Final / Oral Exam	1	20	20
		Total Workload	**149**