Syllabus (tentative)	Subject	MGT 800: Applied Business Statistics - 3KU/6ECTS credits
	Department	Economics and Management
	Program	Graduate
	Term	Fall 2023
	Instructor	Rovshan Hajiyev
	E-mail	rovshan.hajiyev@khazar.org
	Classroom/hours	Bashir Safaroglu 122, Room
Language	English	
Compulsory/Elective	Compulsory	
Textbooks and course materials	*Core Textbooks:* *[1]* Applied statistics in business and economics. 5th edition. By David P Doane, Lori Welte Seward Year: 2016 Publisher: Mcgraw-Hill Education Publisher Place: New York, Ny ISBN: 9780077837303 *Supplementary reading materials:* *[2]* Statistics for Business & Economics. 14th edition. By David R Anderson Year: 2019 Publisher: Cengage Learning Publisher Place: New York ISBN: 9781337901062 *[3]* The practice of statistics for business and economics. 4th edition. By David S. Moore, George P. McCabe, Layth C. Alwan, Bruce A.Craig Year: 2016 Publisher: W.H. Freeman and Company Publisher Place: New York ISBN: 9781464132261	
Course outline	The course covers describing and organizing data, probability concepts, probability distributions, sampling and sampling distributions, confidence interval estimation, test of hypothesis, analysis of variance and decision-making. Business and economics applications are used to illustrate these concepts.	
Course objectives	To equip students with basic statistical methods used, show them the relevance of statistics in functional areas in Business and Economics and familiarize them with statistical programs used in the business world.	
Learning Outcomes	Having completed the course students will be able to: ● Understand basic properties of data sets and their graphs ● Describe basic traits of data and show the associations between categorical and quantitative variables ● Understand and apply probability concepts into business areas ● Construct confidence intervals and run significance tests about hypothesis ● Work with basic applications and software of statistics (Excel)	

Teaching methods	Case analysis	X
	Lecture	X
	Problem Solving	X

Evaluation Criteria	Methods	Date/deadlines	Percentage (%)
	Midterm Exam	To be announced	30
	Activity		5
	Attendance		5
	Project	Week 15	10
	Quizzes	4th and 12th week	10
	Final Exam	To be announced	40
	Total		100

Policies	**Activity/Attendance.** Because of the once-a-week course format, students are expected to attend all sessions. If you have an absence, take responsibility for making up assignments and for obtaining missed lecture information. Participation is important for doing well in the course. You'll be graded for your active engagement with the material and your peers.

The activity and participation will account for 10 % of the total course grade.

Class preparation: Students are responsible for: 1) reading the assigned materials; 2) taking the initiative to ask questions that promote understanding of the academic subject; 3) communicating regularly with the instructor, especially in matters related to class assignments.

Quizzes: The structure and format of the homework may include multiple choice and open-ended questions.
Analysis of the assigned case will be conducted by each student.
Homework and case analysis will account for 20 % of the final grade.

Project: The purpose of this assignment is to test your ability to 1) locate, 2) select and 3) analyze data. This assignment is based on a situation that you may encounter in a corporate scenario. This purpose is aligned with desirable graduate attributes as part of the learning outcomes associated with Statistics for Business and Economics.

Cheating/Plagiarism. Academic integrity is fundamental to the activities and principles of a university. Breaches of the academic integrity will lead to assignment cancellation. When in doubt about plagiarism or any other form of cheating, consult the course instructor

		Tentative Schedule	
Week	**Date (tentative)**	**Topics**	**Textbook/Assignments**
1		**Using Graphs to Describe Data:** Introduction to Business Analytics Level of measurement Time series versus cross-sectional data Data Descriptions Sampling Concepts and Methods Business Analytics in Practice	Ch2 [page. 23-50]
2		**Statistical grouping:** Signs and types of statistical groupings Width of the intervals. Sturge's rule. 2^k Rule Data Description Numerical applications in Business Analytics	Ch3 [page. 65-95]
3		**Descriptive Statistics:** Numerical Description Central Tendency Standardized Data Percentiles Quartiles and Box Plot Numerical Applications in Business Analytics	Ch4 [page. 113-154]
4		**Probability:** **Quiz 1** Random Experiments Counting Rules Independent Events Conditional Probability	Ch5 [page 172-188]

5		**Probability:** Bayes Theorem	Ch5
		Tree Diagrams	
		Decesion Making in Business Analytics	[page 196-207]
6		**Discrete Probability Distributions:**	Ch6
		Normal Distribution	
		Uniform Distribution	[page 215-232]
		Binomial Distribution	
		Standard Normal Distribution	
		Empirical Approaches	
7		**Sampling Distribution and Estimation:**	Ch7
		Confidence Interval for a mean with known sigma	
		Confidence Interval for a mean with unknown sigma	[page 295-318]
		Confidence Interval for a proportion	
		Applications in Business Analytics	
		Mid-term exam review and discussion:	
8		**One - Sample Hyphotesis Test:**	Ch9
		Mid-term Exam	
		Logic of Hypothesis Testing	[page 341-381]
		Testing a mean known population variance	
		Testing a mean unknown population variance	
		Testing a proportion	
		Business applications	
9		**Two - Sample Hypothesis Test:**	Ch10
		Comparing Two Means: Independent Samples	
		Confidence Interval for the Difference of Two Means	[page 391-417]
		Comparing Two Means: Paired Samples	
		Comparing Two Proportions	
		Confidence Interval for the Difference of Two Proportions	
		Comparing two variances	
10		**Analysis of Variance: 1**	Ch11
		Overview of ANOVA	
		One-Factor ANOVA (Completely Randomized Model)	[page 439-464]
11		**Analysis of Variance: 2**	Ch12
		Tests for Homogeneity of Variances	
		Two-Factor ANOVA without replication	[page 49-510]
		Empirical Applications	
12		**Simple Regression: 1**	Ch12
		Quiz 2	
		Visual Displays and Correlation Analysis	[page 511-524]
		Simple Regression	
		Ordinary Least Squares Formulas Tests for significances	
13		**Simple Regression: 2**	Ch14
		Analysis of Variance Overall Fit	
		Residual Tests	[page 595-627]
		Linear Regression Forecasting	
14		**Chi-Square Tests:**	Ch15
		Chi-Square Test for Independence	
		Chi-Square Tests for Goodness-of-Fit	[page 643-665]

		Uniform Goodness-of-Fit Test	
		Poisson Goodness-of-Fit Test	
		Normal Chi-Square Goodness-of-Fit Test	
15		**Non-Parametric Tests:**	Ch16
		Why Use Nonparametric Tests?	
		One-Sample Runs Test	[page 685-695]
		Wilcoxon Signed-Rank Test	
		Mann-Whitney Test	
		Kruskal-Wallis Test for Independent Samples	
		Project	
		Final exam review and discussion:	
		Final exam	