

College of Business Administration
Quantitative Analysis Department

Business Statistical Analysis

QUA 501

Course Facilitator:

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Office Hours : Mon. 1:00-3:00 Tue. 1:00-3:00 Wed. 1:00-3:00
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Course Description

This course introduces statistical methods and applications, covering descriptive statistics, probability, and inferential techniques necessary for appropriate analysis and interpretation of data relevant to management sciences. Students will use one of the statistical software packages such as PSPP.

Course Objectives

- Familiarity with basic statistics terms.
- Ability to summarize data and do basic statistical analyses using SPSS.
- Ability to understand basic statistical analyses in published journals.
- Understanding of key concepts including statistical hypothesis testing – critical quantitative thinking.
- Foundation for more advanced analyses.

Course Evaluation

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| 1. Assignments and attendance | (20%) |
| 2. Midterm Exam | (20%) |
| 3. Project | (20%) |
| 4. Final exam | (40%) |

Text Book

Wathen, S., Marchal, W., & Lind, D. (2017). *Statistical techniques in business and economics*. McGraw-Hill Higher Education.

David M. Levine, Kathryn A. Szabat, David F. Stephan: **Business Statistics: A First Course, 7th Global Edition**, Pearson

Course Contents and Plan

TOPIC	DATE	READING
Introduction to Statistics: Descriptive statistics <ul style="list-style-type: none"> — Populations and samples — Types of data — Graphic methods — Measures of location — Measures of spread 	8/09/2020	Ch 1,2,3,
Introduction to the SPSS Interface <ul style="list-style-type: none"> — Opening an existing SPSS database — Graphical data analysis — Descriptive statistics 	15/09/2020	
Probability and Probability distributions: <ul style="list-style-type: none"> — Elementary probability — Elementary properties of random variables — Binomial distribution — Poisson distribution — Normal distribution — Central limit theorem — Normal approximation to the binomial — Normal approximation to the Poisson 	22/09/2020 29/09/2020 06/10/2020	Ch 4,5,6,
One-sample inference <ul style="list-style-type: none"> — Populations and samples — Point estimation — The logic of hypothesis testing — Inference for the mean of the normal distribution — Inference for the binomial distribution — Inference for the Poisson distribution — Confidence intervals for the mean and variance — Hypothesis testing and confidence intervals — Confidence intervals for binomial and Poisson 	13/10/2020 20/10/2020 27/10/2020	Ch 7,8
Midterm exam	03/11/2020	
Two-sample inference <ul style="list-style-type: none"> — Inference for paired samples — Inference for independent samples (equal variance) — Underlying assumptions 	10/11/2020 17/11/2020	Ch 9

<ul style="list-style-type: none"> — Inference for independent samples (unequal variance) — Two-sample tests for binomial proportions — Measures of effect for binomial data 		
Simple linear regression and correlation <ul style="list-style-type: none"> — Fitting regression lines - method of least squares — Inference and prediction for regression — Correlation 	24/11/2020	Ch 10
Analysis of Variance, ANOVA <ul style="list-style-type: none"> — One-way ANOVA — Hypothesis testing — Comparisons of Groups 	31/11/2020	Ch 12
Nonparametric Methods <ul style="list-style-type: none"> — Sign Test — Wilcoxon Signed Rank Test — Wilcoxon Rank Sum or Mann Whitney Test — Kruskal Wallis Test — chi-square test for goodness of fit — Chi-square test for independence. 	8/12/2020	Ch 13
Final Exam	13/12/2020	

Some remarks about the Research Paper

- Maximum three students can work together in condition that each one has a certain role.
- Four reports must be submitted:
 - First, title and objectives of the paper in (Week 2).
 - Second, paper literature review, objectives, methodology and questionnaire design in (Week 5).
 - Third, initial analysis of the data in (Week 11)
 - Four, final paper with also short presentation in (week 13).
- It is expected that all papers are done in professional way that represent well educated master's degree students.
- The paper should be typed in Double space Simplified Arabic (font 14).
- All analysis have to be done in SPSS.
- There should be a cover page with:
 - ✓ Title of the program
 - ✓ Course title and no.
 - ✓ Names of the students and their university ID no.
 - ✓ Date of submission