

Academic Year: ( 2021 / 2022 )

Review date: 14-06-2021

Department assigned to the subject: Statistics Department

Coordinating teacher: VELILLA CERDAN, SANTIAGO

Type: Electives ECTS Credits : 6.0

Year : Semester :

**REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)**

Sequences:

Statistics I-II

Mathematics for Economics I-II

In general: Fundamentals of Statistics, Linear Algebra, and Calculus. Some acquaintanceship with Microsoft Excel is also advisable.

**OBJECTIVES**

Advanced techniques of Microsoft Excel with applications in Business Analytics

**DESCRIPTION OF CONTENTS: PROGRAMME**

The purpose of the course is to present an advanced revision of Business Analytics techniques, based on the intensive use of Microsoft Excel

**1. Introduction to BUSINESS ANALYTICS**

- \*\* 1.1 Examples of Business Data
- \*\* 1.2 Numerical and graphical tasks
- \*\* 1.3 Business Analytics and Microsoft Excel

**2. FUNDAMENTALS of Software**

- \*\* 2.1 Introduction to Excel
- \*\* 2.2 Keyboard shortcuts and screen operators
- \*\* 2.3 Ranges in Excel
- \*\* 2.4 Excel functions and expressions
- \*\* 2.5 Tables and Pivot Tables
- \*\* 2.6 Filtering and Sorting
- \*\* 2.7 Charts with Excel
- \*\* 2.8 Dashboards
- \*\* 2.9 Conditional formatting
- \*\* 2.10 Importing text data into Excel
- \*\* 2.11 Importing data from the Internet
- \*\* 2.12 Matrices with Excel
- \*\* 2.13 Excel Add-Ins
- \*\* 2.14 Printing an Excel Workbook

**3. REVIEW of elements of Statistics**

- \*\* 3.1 Excel functions for exploratory data analysis
- \*\* 3.2 Stacked and unstacked data layouts
- \*\* 3.3 Histograms and Box-Plots with Excel
- \*\* 3.4. Multidimensional data
- \*\* 3.5 The data matrix
- \*\* 3.6 Different types of data
- \*\* 3.7 Mean vector. Covariance and correlation matrices
- \*\* 3.8 Centering and standardizing

- \*\* 3.9 Data reduction
- \*\* 3.10 The normal distribution. Distribution tables. Applications with Excel

#### 4. SIMULATION techniques.

- \*\* 4.1 Basic simulation methods with Excel
- \*\* 4.2 Generation of univariate and multivariate normal data with Excel
- \*\* 4.3 Applications and examples with Excel

#### 5. CASE analysis

- \*\* 5.1 Examples of real data applications in Business, Economics, Finance, and Marketing with Excel.

### LEARNING ACTIVITIES AND METHODOLOGY

Competences will be acquired by students from:

[I] Theory classes: one per week (14 sessions) [eventually online synchronous]

[II] Practical classes in the computer room: one per week (14 sessions) [face-to-face]

Activities [I] and [II] will be devoted to exercises, problems, data examples, and case studies. Teaching will make intensive use of the resources available in Aula Global. In face-to-face teaching, the preferent program is Microsoft Excel 2016 for Windows. Online sessions in turn will use Microsoft Excel 365, that the University makes available to the students for free. Online sessions will be recorded.

### ASSESSMENT SYSTEM

Continuous evaluation: 50%

This will consist in the completion of some software practices, with a collection of computer and data analysis activities (50%).

Final exam: 50%

Further details can be however discussed at the beginning and end of the course, in order to reach a common agreement between instructor and students.

Attendance to class will be taken into account in the grading process.

<b>% end-of-term-examination:</b>	50
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	50

### BASIC BIBLIOGRAPHY

- ALBRIGHT, S. C. and WINSTON, W. L. Business Analytics: Data Analysis & Decision Making, 7th Edition, Cengage Learning, 2020
- WINSTON, W. L. Microsoft Excel 2019: Data Analysis and Business Modeling, 6th Edition Microsoft Press, 2019

### ADDITIONAL BIBLIOGRAPHY

- ANDERSON, D. R., SWEENEY, D. J. and WILLIAMS, T. A. Essentials of Modern Business Statistics with Microsoft Excel, 6th Edition, Cengage Learning, 2016
- JOHNSON, R. A. and WICHERN, D. W. Applied Multivariate Statistical Analysis, 6th Edition, Prentice Hall, 2007