

Academic Year: ( 2023 / 2024 )

Review date: 18-04-2023

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

Some familiarity 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: 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 sessions, the program is Microsoft Excel 2021 for Windows or Microsoft Excel 365. The University makes the latter 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 and Decision Making, 7th Edition, Cengage Learning, 2019

- WINSTON, W. L. Microsoft Excel Data Analysis and Business Modeling (Office 2021 and Microsoft 365), Microsoft Press, 2021

### ADDITIONAL BIBLIOGRAPHY

- ANDERSON, D. R., SWEENEY, D. J. and WILLIAMS, T. A. Modern Business Statistics with Microsoft Excel, 7th Edition, Cengage Learning, 2021

- JELEN, B. Microsoft Excel Pivot Table Data Crunching (Office 2021 and Microsoft 365), Microsoft Press, 2021