



UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Data Analysis

Academic Year 2023/2024

1. Organic Unit

Faculty of Business and Economic Sciences

2. Course

Tourism Management

3. Cycle

1st

4. Course Unit

Data Analysis (V2105)

5. Scientific Area

6. Curricular Year

1st

7. Type of Curricular Unit / Semester

1st Semester



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8. Class type and workload (work time)

Theoretical classes:

Practical classes:

Theoretical-Practical Classes 30,00

Tutorial Guidance: 20,00

9. ECTS Credits

6,00

10. Scientific Area Coordinator

11. Regent

Prof. Doutor RICARDO MANUEL DE MAGALHAES PINHEIRO ALVES

12. Assistants

13. Teaching Language

Portuguese

14. General Objectives

Introduction of students to the methods of applied economic analysis.

Introduction of descriptive statistics concepts.

Introduction of students in research techniques and information processing.

15. Specific Objectives

Know the fundamental characteristics of economic and business variables.

Know the fundamental characteristics of quantitative economic and business information.

Learn and practice the main methods of exploratory data analysis, graphical representation and correlation analysis and simple linear regression.

Knowing the most relevant sources of information for carrying out work empirical.

16. Skills to be acquired

Teaching is centered on solving applications, that is, on developing skills to solve data analysis problems in economics and business sciences, through a systematic resolution methodology: How to present the problem in quantitative terms? What are useful concepts? Are the validity conditions checked? How to manipulate the concepts? What is the answer to the problem? The course is based on a good understanding of the methods and training in the application conditions.



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17. Teaching Methodology

Problem-solving lectures (the teacher introduces the concepts through an application and deduces the abstract aspects); tutorial classes (the teacher presents the applications to the students and with their active participation a solution is sought).

18. Course Unit Program

CHAPTER 1 - INTRODUCTION

CHAPTER 2 - DESCRIPTIVE STATISTICS. EXPLORATORY DATA ANALYSIS.

2.1. Population and sample. Qualitative and quantitative data. Discrete and continuous variables.

2.2. Tabulation and graphical representation of data.

2.2.1. Tabular and graphical representation of qualitative data: frequency table, bars, circle or pie charts.

2.2.2. Tabular and graphical representation of discrete quantitative data: table of frequencies, dot graphs, bar chart, cumulative frequency function.

2.2.3. Tabular and graphical representation of continuous quantitative data: table of frequencies, histogram, frequency polygon.

2.2.4. Stem-and-leaf diagram.

2.3. Measures of location and dispersion.

2.3.1. Location measures: arithmetic mean, geometric mean, and mean harmonica. Median. Fashion. Properties. Quantiles: quartiles, deciles and percentiles. Diagram of extremes and quartiles (box-plot). Sample comparison.

2.3.2. Dispersion measures: amplitude, mean absolute deviation, variance, standard deviation and coefficient of variation. Properties.

2.4. Concentration measures. Gini index and Lorenz curve.

2.5. Shape parameters. Coefficients of asymmetry and flattening or kurtosis.

CHAPTER 3- INDEX NUMBERS.

3.1. Definition and properties of index numbers.

3.2. Simple index numbers.

3.3. Aggregate or composite index numbers. Laspeyres Index and Paasche Index.

3.4. Composite indices.

3.5 Manipulation of index numbers: changing base and linking index series

3.6. Deflation of time series.

CHAPTER 4 - CORRELATION AND REGRESSION.

4.1. Scatter diagrams.

4.2. Simple linear regression model

4.3. Coefficients of determination and Pearson's linear correlation.

4.4. Spearman correlation coefficient for ordinal data

19. Assessment Methods

Group work report (groups of 3 elements from laboratory classes) and two individual tests.



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20. Didactic Resources

Various notes and exercises available on moodle.

21. Sustainability Objectives

Include data from the United Nations Agenda for Sustainable Development, namely the 17 Sustainable Development Goals, in the students' practical work, as a way to make them aware of this problem.

22. Keywords

Population
Average
variance
Correlation
Regression
index numbers



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23. Main Bibliography

Author(s): Reis, Elizabeth
Title: Estatística Descritiva
Edition: 7^a Year: 2022
Local: Lisboa
Publisher: Edições Sílabo

Author(s): NEGAS, E.
Title: ESTATÍSTICA DESCRITIVA
Edition: 2^a Year: 2021
Local: Lisboa
Publisher: Sílabo

Author(s):
Title:
Edition: Year:
Local:
Publisher:

24. Complementary Bibliography

Author(s): Silvestre, A. L.
Title: Análise de Dados e Estatística Descritiva
Edition: 1^a Year: 2007
Local: Lisboa
Publisher: Escolar Editora

Author(s): Chaves, C., Maciel, E., Guimarães, P. e Ribeiro J.C.
Title: Instrumentos Estatísticos de Apoio à Economia: Conceitos Básicos
Edition: 1^a Year: 1999
Local: Lisboa
Publisher: McGraw-Hill de Portugal



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