UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Data Analysis and Treatment

Academic Year 2025/2026

1. Organic Unit

Faculty of Business and Economic Sciences

2. Course

Human Resource Management

3. Cycle

1st

4. Course Unit

Data Analysis and Treatment (11304)

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. Doutora CRISTINA MARIA FERNANDES NUNES

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

Knowledge of the fundamental characteristics of economic and business variables.
Knowledge of the fundamental characteristics of economic and business information of a quantitative nature.
Acquisition of exploratory analysis methods for statistical data that synthesize information.
Knowledge of the most relevant sources of information for carrying out empirical work.

16. Skills to be acquired

Calculate and interpret rates of change, index numbers, key descriptive statistics, correlation coefficient, and simple linear regression.
Exploratory data analysis, with graphical representation of data or in tables, based on examples applied to Management and Economics.
Acquire basic notions of Excel, especially in the calculation and representation of pivot tables and graphs.

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17. Teaching Methodology

Teaching is focused on developing problem-solving skills in data analysis in business and economic sciences, through a systematic solving methodology. How to present the problem in quantitative terms? What are the useful concepts? Are the conditions of validity verified? How to manipulate concepts? What is the answer to the problem? The Course is based on a good understanding of the methods in the TP classes and on the training of the application conditions in the OT classes.

18. Course Unit Program

CHAPTER 1 - RATES OF CHANGE AND INDEX NUMBERS.
1.1. Variation rates.
1.2. Simple index numbers.
1.3. Aggregate, or composite, index numbers.
1.4. Nominal and real variables and price indices.

CHAPTER 2 - DESCRIPTIVE STATISTICS. EXPLORATORY DATA ANALYSIS.
2.1. 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, bar diagram, circular diagram.
2.2.2. Tabular and graphical representation of discrete quantitative data: frequency table, dot graphs, bar diagram, cumulative frequency function.
2.2.3. Tabular and graphical representation of continuous quantitative data: frequency table, histogram, frequency polygon.
2.3. Location and dispersion measures.
2.3.1. Location measures: arithmetic mean, weighted mean, geometric mean and harmonic mean. Fashion. Properties.
2.3.2. Dispersion measures: amplitude, mean absolute deviation, variance, standard deviation and coefficient of variation. Properties.
2.4. Data sorting. Stem-and-leaf diagram.
2.5. Median. Quartile, decile, percentile, quantile.
2.6. Shape parameters. Coefficients of asymmetry and flatness.
2.7. Diagram of extremes and quartiles. Sample comparison. Outliers.
2.8. Concentration measures. Gini index and Lorenz curve.

CHAPTER 3 - CORRELATION AND REGRESSION.
3.1. Scatter diagrams.
3.2. Covariance.
3.3. Standardization of a sample.
3.4. Linear correlation coefficient.
3.5. Simple linear regression.

19. Assessment Methods

Work carried out throughout the semester.
Conducting two assessment tests.

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20. Didactic Resources

Whiteboard, multimedia projection, solved worksheets, Microsoft Excel, access to the database (Pordata) and support platforms such as Moodle.

21. Sustainability Objectives

The UC contributes to SDG 4 (quality education), by promoting quantitative skills applied to economic and business analysis, and to SDG 8 (Decent Work and Economic Growth), by empowering students to use rigorous data in the evaluation of business policies and decisions.

22. Keywords

Sample
Population
Average
variance
Correlation
Regression
index numbers

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23. Main Bibliography

Author(s): ST. AUBYN, A. e VENES, N.
Title: ANÁLISE DE DADOS - APLICAÇÕES ÀS CIÊNCIAS ECONÓMICAS E EMPRESARIAIS
Edition: 1ª Year: 2011
Local: Lisboa
Publisher: Verlag Dashöfer
ISBN Code:

Author(s): IMAI, K.
Title: QUANTITATIVE SOCIAL SCIENCE: AN INTRODUTION
Edition: 1ª Year: 2017
Local: PRINCETON AND OXFORD
Publisher: PRINCETON UNIVERSITY PRESS
ISBN Code:

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

24. Complementary Bibliography

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

Author(s): Magalhães, F.M.; Oliveira, C.T.; Silva, E.S.
Title: Estatística descritiva aplicada à gestão: uma análise exploratória de dados
Edition: 1ª Year: 2017
Local: Porto
Publisher: Vida Económica

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