UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Data Analysis

Academic Year 2026/2027

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 LUCAS DE PAULA ANDRADE MENESCAL

12. Assistants

13. Teaching Language

Português

14. General Objectives

To introduce students to the methods of applied economic analysis.
To introduce the concepts of descriptive statistics.
To introduce students to 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 methods of exploratory analysis of statistical data that synthesize information.
Knowledge of the most relevant sources of information for conducting empirical studies.

16. Skills to be acquired

Calculate and interpret rates of variation, index numbers, the main descriptive statistics and correlation and regression coefficients.
Exploratory data analysis with the main graphical representation of data based on examples applied to management and economics.
Acquire basic knowledge of Excel and R Studio software.

17. Teaching Methodology

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The teaching focuses on developing problem-solving skills in data analysis in economics and management, through a systematic problem-solving methodology: How to present the problem in quantitative terms? Which concepts are useful? Are the validity conditions verified? How to manipulate the concepts? What is the answer to the problem? The course unit is based on a good understanding of the methods in the theoretical-pratical classes and practical training in the tutorial sessions.

18. Course Unit Program

CHAPTER 1 - RATES OF CHANGE AND INDEX NUMBERS.
1.1. Rates of change.
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, pie chart.
2.2.2. Tabular and graphical representation of discrete quantitative data: frequency table, dot plots, 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. Mode. Properties.
2.3.2. Measures of dispersion: range, 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. Measures of shape. Skewness and kurtosis coefficients.
2.7. Box-and-whisker plot. Comparison of samples. Outliers.
2.8. Concentration measures. Gini index and Lorenz curve.
CHAPTER 3 - CORRELATION AND REGRESSION.
3.1. Scatterplots.
3.2. Covariance.
3.3. Standardisation of a sample.
3.4. Linear correlation coefficient.
3.5. Simple linear regression.

19. Assessment Methods

The Regulations for the Assessment of Knowledge and Skills currently in force will apply. Under continuous assessment, oral contributions distributed throughout the teaching period and a final written test will be mandatory.

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20. Didactic Resources

Whiteboard, multimedia projection, solved problem sets, Excel and R Studio software, access to databases and support platforms such as Moodle.

21. Sustainability Objectives

The course unit 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 enabling students to use data rigorously to evaluate policies and business decisions.

22. Keywords

Sample
Population
Mean
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: 9789896421854

Author(s): Imai, K.
Title: Quantitative Social Science: An Introduction
Edition: 1st Year: 2017
Local: Princeton and Oxford
Publisher: Princeton University Press
ISBN Code: 9780691175461

Author(s): Magalhães, F.M. de, Oliveira, C.T. de e Silva, E.S.
Title: Estatística descritiva aplicada à gestão: uma análise exploratória dos dados
Edition: 1a Year: 2017
Local: Porto
Publisher: Vida Económica
ISBN Code: 9789897683084

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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: 978-972-773-034-6

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

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Autor / Author	Prof. Doutor LUCAS DE PAULA ANDRADE MENESCAL
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