UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Descriptive Statistics

Academic Year 2025/2026

1. Organic Unit

Faculty of Business and Economic Sciences

2. Course

Human Resource Management

3. Cycle

1st

4. Course Unit

Descriptive Statistics (11309)

5. Scientific Area

6. Curricular Year

1st

7. Type of Curricular Unit / Semester

2nd 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 GUILHERME BERSE RODRIGUES LAMBAIS

12. Assistants

13. Teaching Language

Portuguese

14. General Objectives

Apply statistical analysis techniques to solve specific problems in the field of business management. Present the basic methods of statistical analysis, focusing on the connection between sample and population.

15. Specific Objectives

Compare sample data with theory (sets of abstract hypotheses about population parameters). Describe and understand random experiments, measure and control the uncertainties inherent in statistical reasoning through statistical inference and hypothesis testing.

16. Skills to be acquired

Understanding of probability theory, the concept of random variables, the main distributions, and statistical inference methods.
Develop the ability to apply them to specific problems in the business management domains.
Apply confidence interval estimation and hypothesis testing in practice.
Basic knowledge of Excel and R Studio for solving statistical problems.

17. Teaching Methodology

Teaching is focused on solving applications, that is, on developing problem-solving skills in business management through a systematic problem-solving methodology. In TP classes, students are introduced to theory through empirical applications, and in OT classes, students receive tutoring to solve statistical problems in practice, with an introduction to the basics of Excel and R Studio.

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18. Course Unit Program

1. PROBABILITY THEORY.
1.1. Concepts, algebra of events, axioms.
1.2. Conditional probabilities. Independence of events.
1.3. Total Probability Theorem and Bayes' Theorem.
2. RANDOM VARIABLES.
2.1. Concept.
2.2. One-dimensional probability and RV distribution functions.
2.3. Two-dimensional probability and RV distribution functions.
2.4. Parameters.
3. DISTRIBUTIONS OF DISCRETE AND CONTINUOUS RANDOM VARIABLES.
3.1. Uniform distribution.
3.2. Bernoulli distribution.
3.3. Binomial distribution.
3.4. Poisson distribution;
3.5. Normal Distribution.
4. SAMPLE DISTRIBUTIONS.
4.1. Normal Distribution, Chi-Square, t-Student and F-Snedecor.
4.2. Sample distributions of the most important statistics: Bernoulli populations and Normal populations.
5. INTRODUCTION TO STATISTICAL INFERENCE.
5.1. Spot estimation.
5.2. Interval estimation: core variable method.
6. HYPOTHESIS TESTING.
6.1. Formulation of hypotheses.
6.2. Errors and Probabilities.
6.3. Power function.
6.4. Parametric hypothesis testing.

19. Assessment Methods

Problem sets throughout the semester.
Two evaluation tests.

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

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22. Keywords

Probability
Random variables
Probability distributions
Sample
Estimation
Hypothesis testing

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23. Main Bibliography

Author(s):	Reis, E., P. Melo, R. Andrade & T. Calapez		
Title:	Estatística Aplicada (Vol. 1)		
Edition:	6a	Year:	2015
Local:	Lisboa		
Publisher:	Sílabo		
ISBN Code:			

Author(s):	Reis, E., P. Melo, R. Andrade & T. Calapez		
Title:	Estatística Aplicada (Vol. 2)		
Edition:	5a	Year:	2016
Local:	Lisboa		
Publisher:	Sílabo		
ISBN Code:			

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

24. Complementary Bibliography

Author(s):	Nunes, C.		
Title:	Probabilidades e Estátistica - Problemas Resolvidos e Propostos		
Edition:	1a	Year:	2022
Local:	Lisboa		
Publisher:	Escolar Editora		
ISBN Code:			

Author(s):	Murteira, B., C.S. Ribeiro, J. Andrade e Silva, C. Pimenta & F. Pimenta		
Title:	Introdução à Estatística		
Edition:	3a	Year:	2015
Local:	Lisboa		
Publisher:	Escolar Editora		
ISBN Code:			

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Autor / Author	Prof. Doutor GUILHERME BERSE RODRIGUES LAMBAIS
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