UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Statistics

Academic Year 2024/2025

1. Organic Unit

Faculty of Business and Economic Sciences

2. Course

Business Management

3. Cycle

1st

4. Course Unit

Statistics (24111)

5. Scientific Area

6. Curricular Year

2nd

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

Prof. Doutora CRISTINA MARIA FERNANDES NUNES

13. Teaching Language

Portuguese

14. General Objectives

To apply statistical analysis techniques in solving concrete problems in the fields of Marketing and Management. To present the basic methods of statistical analysis, focusing on the close connection between sample and population.

15. Specific Objectives

Statistics is the science that allows you to compare the data of a sample with the theory (sets of abstract hypotheses about population parameters). The Theory of Probability, a branch of mathematics that allows to describe and understand random processes, is the indispensable instrument to measure and control the uncertainties inherent in statistical reasoning.

16. Skills to be acquired

Teaching is focused on application solving, i.e. the development of problem-solving skills in economic and social sciences through a systematic methodology of resolution. It is essential that students can achieve a good level of understanding of statistical methods and their ability to apply them to concrete problems in the fields of marketing or management.

17. Teaching Methodology

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The teaching of this course will be based on three concrete methodologies:
Lectures of an expository nature, for the presentation of the theoretical elements of reference.
Participatory classes, with analysis and resolution of practical exercises, which can take place at the same time as the expository classes.
Self-study related to the student's self-employment, as stated in the lesson planning (see syllabus). If possible, R will be used.

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

The continuous assessment score results from the weighted average of two tests to be carried out (40% each) and problem sets (20%).

20. Didactic Resources

There are rooms equipped with computers with internet access, and with the statistics software (R), available for students who wish to further develop their knowledge of the subject.

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21. Sustainability Objectives

SDG 4; SDG 8.

22. Keywords

Odds
Random variables
Probability distributions
Sample
Estimation
Hypothesis testing

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23. Main Bibliography

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		

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

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

24. Complementary Bibliography

Author(s):	Nunes, C. F.		
Title:	Probabilidades e Estatística - 275 problemas resolvidos (utilização do R)		
Edition:		Year:	2012
Local:	Lisboa		
Publisher:	Escolar Editora		

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

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Ficha técnica MIP / MIP Datasheet	
Título / Title	Course Unit Program 'ESTATÍSTICA': Academic Year 2024/2025
Autor / Author	Prof. Doutor GUILHERME BERSE RODRIGUES LAMBAIS
Classificação / Classification	-
Descritores / Descriptors	-
Colaborador(es) / Colaborator(s)	-
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