UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Descriptive Statistics

Academic Year 2024/2025

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 JOÃO JOSÉ AMARO AMADOR LEITÃO

12. Assistants

13. Teaching Language

Portuguese

14. General Objectives

Statistics is the science that allows comparing sample data with theory (sets of abstract hypotheses about population parameters).
Probability Theory, a branch of Mathematics that allows describing and understanding random experiences, constitutes the necessary instrument to measure and control the uncertainties inherent in statistical reasoning.
This course shows the basic methods of inferential statistical analysis, focusing on the intimate connection between sample and population.

15. Specific Objectives

Use of the random variable concept in the modeling of simple phenomena. Main theoretical distributions and their use in the construction of sampling distributions. Main statistical inference methods: point and interval estimation, hypothesis tests. Regression analysis. Analysis of variance.

16. Skills to be acquired

Teaching is centered on solving applications, that is, on developing skills for solving data analysis problems in social 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

Theoretical classes (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

Chap. 1. Review of the most important distributions in Statistics.
1.1. Binomial, hypergeometric, Pascal, negative binomial and Poisson distributions.
1.2. Uniform, exponential and normal distributions.
1.3. Student distribution.
1.4. Chi-square distribution.
1.5. Fisher distribution.

Chap. 2. Estimation.
2.1. Sampling distribution of the mean for normal populations.
2.2. Sampling distribution of the mean for non-normal populations.
2.3. Point and interval estimation.
2.4. Confidence intervals.
2.5. Hypothesis tests.

Chap. 3. Non-parametric statistics.
3.1. Fit tests.
3.2. Independence and homogeneity tests.
3.3 Signal test.
3.4 Wilcoxon test.

Chap. 4. Linear regression analysis.
4.1. Theoretical aspects.
4.2. Practice of simple linear regression analysis.
4.3. Diagnostics in simple linear regression
4.4. Multiple linear regression analysis: theoretical aspects.
4.5. Practice of multiple linear regression analysis.
4.6. Diagnostics in multiple linear regression.
4.7. Qualitative variables in multiple linear regression.
4.8. Diagnostics in multiple linear regression.

Chap. 5. Analysis of variance.
5.1. Analysis of variance: theoretical aspects.
5.2. Practice of analysis of variance to a fixed and random factor.
5.3. Variance analysis of several factors: theoretical aspects.
5.4. Practice of two-way analysis of variance.

19. Assessment Methods

Two written tests with a weighting of 50% each.

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20. Didactic Resources

Use of Microsoft Excel and IBM SPSS Statistical package.

21. Sustainability Objectives

4. Quality Education
5. Gender Equality
9. Industry, Innovation and Infrastructure

22. Keywords

Confidence intervals
Hypothesis tests
Linear regression
Analysis of variance
Covariance

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23. Main Bibliography

Author(s):	Murteira, Bento, Carlos Silva Ribeiro, João Andrade		
Title:	Introdução à Estatística		
Edition:	3ª	Year:	2011
Local:	Lisboa		
Publisher:	Escolar Editora		

Author(s):	Fernanda Figueiredo, Adelaide Figueiredo, Alexandre Ramos, Paulo Torres		
Title:	Estatística Descritiva e Probabilidades		
Edition:	2ª	Year:	2011
Local:	Lisboa		
Publisher:	Escolar Editora		

Author(s):	Fernanda Figueiredo, Adelaide Figueiredo, Alexandre Ramos, Paulo Torres		
Title:	Inferência Estatística		
Edition:	1	Year:	2017
Local:	Portugal		
Publisher:	Escolar Editora		

24. Complementary Bibliography

Author(s):	Ferreira, E. A., Zampieron, J. V.		
Title:	Excel: Uma ferramenta estatística		
Edition:	1ª	Year:	2021
Local:	Brasil		
Publisher:	Brazil Publishing		

Author(s):	Coelho, J. P., Cunha, L. M., Martins, I. L.		
Title:	Inferência Estatística - Com Utilização do SPSS e Gpower		
Edition:	1ª	Year:	2008
Local:	Lsboa - Portugal		
Publisher:	Edições Sílabo		

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Ficha técnica MIP / MIP Datasheet	
Título / Title	Course Unit Program 'ESTATÍSTICA INFERENCIAL': Academic Year 2024/2025
Autor / Author	Prof. Doutor JOÃO JOSÉ AMARO AMADOR LEITÃO
Classificação / Classification	-
Descritores / Descriptors	-
Colaborador(es) / Colaborator(s)	-
Data Hora / Date Time	
Formato de dados / Data Format	Texto / Text, PDF
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