UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Data Analysis and Treatment

Academic Year 2024/2025

1. Organic Unit

Institute of Psychology and Educational Sciences

2. Course

PSYCHOLOGY

3. Cycle

1st

4. Course Unit

Data Analysis and Treatment (20305)

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 MIGUEL DA COSTA NUNES DE FREITAS

12. Assistants

Prof. Doutora JOANA MARTINS GONÇALVES LOPES

13. Teaching Language

Portuguese

14. General Objectives

This module aims to develop the necessary knowledge and skills for students to become critical consumers of research. The module is designed to help students developing skills in how to design and implement a research study, how to measure human behaviour, and how to analyze and interpret data.
Throughout the semester, students will focus on research that involves describing behaviour or studying the relationship/ association between variables.

15. Specific Objectives

Critically read psychological research (its design, analysis, and interpretation) of a descriptive or correlational nature.
Select and use techniques to analyze, report, and conclude from quantitative data, including inferential tests of correlation and association.
Understand how to measure and analyze behaviour, and understand strengths and limitations of different research methodologies.
Write the Method and Results sections of a study.

16. Skills to be acquired

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Foster a positive attitude towards science
Understand the fundamentals of research in psychology
Analyze research by identifying the variables involved
Distinguish data analysis strategies according to the nature of psychological phenomena
Develop problem solving skills in data analysis in behavioural sciences
Decode a scientific paper, according to the steps of the scientific method

17. Teaching Methodology

Classes are theoretical and practical, using the expository, interrogative and active method, with discussion of the themes and their practical implications, as well as the realization of practical exercises for application of knowledge. We will use pedagogical techniques that value peer collaboration and learning by guided discovery, by exploring statistical analysis software. Autonomy and critical thinking will be encouraged.

18. Course Unit Program

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1. Scientific research in Psychology
1.1 Psychological science
1.2 Scientific Method
1.3 Introduction to the structure of a scientific work

2. Variables and their measurement 2.1.
2.1 Distribution
Normality, asymmetry and kurtosis 2.2.
2.2 Measurement scales
2.3 Descriptive statistics
2.3.1 Central tendency measures (mode, mean and median) and non-central measures (maximum, minimum, quartiles and percentiles)
Measures of variability (range, interquartile range, standard deviation and variance)
2.3.3. Standardized values

3. Analysing frequency data
3.1. A single categorical variable: Chi-square test
3.2 Two categorical variables: Contingency tables
3.3. Correlation and causality

4. Measuring behaviour and assessing measures
4.1 Reliability and validity
4.1.1 Operational definitions
4.2 Correlational research strategy

5. Linear Relationships 1: Correlation
5.1 Identifying and describing correlations
5.1.1 Scatter-plots and correlation coefficient
5.2 Introduction to inferential statistics
5.2.1 Test of hypothesis and statistical significance

6. Linear relations 2: Simple linear regression
6.1 Describing relations between variables: The regression line
6.2 Applying regression analysis
6.3 Interpreting the results of a study
6.3.1 Decoding and interpreting the Method and Results sections

7. Critical reading of an investigation
7.1 Decoding and critically reading scientific articles
7.2 Understanding the Method section
7.3 Understanding the Results section
7.4 Understanding research
7.4.1. External validity
7.4.2. Multiple causality

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19. Assessment Methods

According to the Regulamento Geral de Avaliação da Universidade Lusíada, students must sit:
A) Two written tests (60%)
B) Final written Exam (40%)

20. Didactic Resources

1. Powerpoints, databases and scientific articles
2. Computers and IBM SPSS software
3. Recommended readings

21. Sustainability Objectives

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Target 4.4: By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship

Target 4.7: By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development.

22. Keywords

Method
Data analysis
Descriptive statistics
SPSS

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23. Main Bibliography

Author(s):	Gravetter, F.J. & Forzano, L-A. B.		
Title:	Research methods for the behavioral sciences		
Edition:	6ª	Year:	2019
Local:	Boston		
Publisher:	Cengage Learning		

Author(s):	Howell, David C.		
Title:	Fundamental Statistics for the Behavioral Sciences		
Edition:	9ª	Year:	2017
Local:	Boston		
Publisher:	Cengage Learning		

Author(s):	Shaughnessy, J. J., Zechmeister E. B. & Zechmeister, J. S.		
Title:	Research Methods in Psychology		
Edition:	10ª	Year:	2014
Local:	New York		
Publisher:	McGraw Hill		

24. Complementary Bibliography

Author(s):	Dancey, C. P. & Reidy, J.		
Title:	Statistics without maths for Psychology		
Edition:	8th	Year:	2020
Local:			
Publisher:	Pearson		

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

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Autor / Author	Prof. Doutor MIGUEL DA COSTA NUNES DE FREITAS
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