UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Quantitative Methods

Academic Year 2025/2026

1. Organic Unit

Institute of Psychology and Educational Sciences

2. Course

PSYCHOLOGY

3. Cycle

1st

4. Course Unit

Quantitative Methods (20318)

5. Scientific Area

6. Curricular Year

2nd

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 JOÃO JOSÉ DA SILVA PISSARRA

12. Assistants

Prof. Doutora ANA CRISTINA DOS SANTOS LOPES

13. Teaching Language

Portuguese

14. General Objectives

The course is designed to develop the knowledge and skills required for students to effectively apply and adapt quantitative methods in research projects. Students will learn to design and implement research studies, select appropriate instruments for operationalizing and measuring variables, and analyze and interpret data using SPSS software. Throughout the semester, emphasis will be placed on hands-on research activities involving data analysis and interpretation.

15. Specific Objectives

1. Define and differentiate the main quantitative research designs used in psychological studies, with attention to their structure, analytical approaches, and interpretation.
2.Identify and describe the key phases of experimental research, including the design of experimental studies and the various methods of variable manipulation and control.
3. Analyze and interpret quantitative data, articulating the strengths and limitations of different research methodologies.
4. Apply quantitative met

16. Skills to be acquired

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Demonstrate an understanding of the fundamental principles of statistics and develop practical skills in computing univariate, bivariate, and multivariate statistics within the context of psychological research.
Formulate clear, testable, and theoretically grounded hypotheses.
Develop proficiency in performing statistical analyses and interpreting the results accurately.
Appropriately apply, report, and interpret a range of univariate, bivariate, and multivariate inferential statistical techn

17. Teaching Methodology

Classes integrate both theoretical and practical components, employing expository, inquiry-based, and active learning methodologies. Course topics are explored in depth through discussion of their practical implications and reinforced with applied exercises and activities.
Pedagogical approaches emphasizing peer collaboration and guided discovery learning will be employed, supported by the use of statistical analysis software. The course also fosters student autonomy, critical reflection, and t

18. Course Unit Program

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1. Formulation of Research Questions
Evaluating the suitability of research questions for quantitative inquiry
Distinguishing between exploratory and confirmatory research purposes
2. From Research Questions to Hypotheses
Developing research objectives and formulating testable hypotheses
Understanding the distinction between causal and associative relationships
3. Experimental Research Designs
3.1 Analysis of Variance (ANOVA)Conceptual foundations and assumptions of ANOVA
3.2 One-Way ANOVA Testing mean differences across independent groups
3.3 Multiple Comparisons in One-Way ANOVA
3.3.1 Planned Contrasts
3.3.2 Post Hoc Tests
3.3.3 Repeated Measures ANOVA
3.4 Factorial ANOVA
3.4.1 Two-Way ANOVA
3.4.2 ANOVA with More Than Two Factors
3.4.3 Multiple Comparisons in Factorial Designs
3.4.4 Repeated Measures ANOVA in Factorial Contexts
3.5 Analysis of Covariance (ANCOVA)
Controlling for covariates in experimental designs
3.6 Multivariate Analysis of Variance (MANOVA)
Examining multiple dependent variables simultaneously
4. Correlational Research Designs
4.1 Univariate Linear Regression Models
Modeling and interpreting linear relationships between variables
4.2 Inference in Linear Regression Models
Estimation, hypothesis testing, and confidence intervals
4.3 Validation of Regression Model Assumption
Assessing linearity, normality, homoscedasticity, and independence
4.4 Predictor Selection Methods
Stepwise, forward, and backward selection techniques
4.5 Moderation and Mediation Analyses
Testing interaction and indirect effects
4.6 Hierarchical Regression Models
Evaluating incremental variance explained by predictor sets
4.7 Logistic Regression
Modeling binary and categorical outcomes
5. Mixed-Methods Research Designs
Integrating quantitative and qualitative approaches
Sequential, concurrent, and embedded mixed-methods strategies
6. Ethical Principles in Quantitative Research
Ensuring participant rights, data integrity, and research transparency
7. Critical Analysis of Quantitative Research
Evaluating methodological rigor, validity, reliability, and generalizability

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19. Assessment Methods

Assessment will be conducted in accordance with the General Assessment Regulations of Lusíada University. For students selecting Assessment Method A, evaluation will consist of a midterm examination and two written tests.
Assessment breakdown:
A) Two written tests ? 60%
B) Final written examination ? 40%

20. Didactic Resources

Lecture Presentations (PowerPoint Slides)
Structured materials accompanying class lectures, summarizing key theoretical and methodological concepts.
Academic Databases
Access to peer-reviewed journals and research repositories for literature review and data collection.

Empirical Research Articles
Selected studies illustrating the application of research methods and statistical analysis in real-world contexts.

IBM SPSS and Statistical Software Tools
Software applications used for data

21. Sustainability Objectives

This course unit supports the fulfilment of the United Nations Sustainable Development Goals No. 4 (Quality Education) and No. 8 (Decent Work and Economic Growth), as defined in the official UN framework, by fostering advanced competencies in data analysis and interpretation.

22. Keywords

Advanced Inferential Statistical Techniques
Rigorous Statistical Hypothesis Testing
Bivariate Anal

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23. Main Bibliography

Author(s): Gravetter, F.J. & Forzano, L-A. B.
Title: Research methods for the behavioral sciences
Edition: 10ª Year: 2019
Local: Boston
Publisher: Cengage Learning
ISBN Code: ‎ 978-13376133

Author(s): Howell, D. C.
Title: Fundamental Statistics for the Behavioral Sciences
Edition: 9ª Year: 2017
Local: Boston
Publisher: Cengage Learning
ISBN Code: 978-1305652972

Author(s): Dancey, C. & Reidy, J.
Title: Statistics without maths for psychology
Edition: 8th Year: 2020
Local: Harlow CM17 9SR
Publisher: Pearson
ISBN Code: 978-1-292-27643-4

24. Complementary Bibliography

Author(s): Marôco, J.
Title: Análise Estatística com o SPSS statistics
Edition: 7th Year: 2018
Local: Pero Pinheiro
Publisher: Report Number
ISBN Code: 978-989-96763-5-0

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

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Ficha técnica MIP / MIP Datasheet	
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Autor / Author	Prof. Doutor JOÃO JOSÉ DA SILVA PISSARRA
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Descritores / Descriptors	-
Colaborador(es) / Colaborator(s)	-
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