



COURSE UNIT INFORMATION SHEET (SYLLABUS)

2022/2023

Study Program: Postgraduate Diploma in Data Analysis in Psychology

Name Multivariate Confirmatory Data Analysis (ACDM)
Teaching staff (Also indicate the Professor in charge) <ul style="list-style-type: none">▪ Ana Sousa Ferreira (Professor in charge)
ECTS <ul style="list-style-type: none">▪ 6 ECTS
Functioning <ul style="list-style-type: none">▪ 18 hours/semester of Theoretical-practical classes taught sequentially.
Learning goals <ul style="list-style-type: none">▪ Expand and improve the expertise to investigate in the field of Psychology, equipping students with more methodological knowledge and introducing confirmatory multivariate data analysis methods, that enable the development of research projects and data analysis in this area.
Skills to develop <ol style="list-style-type: none">1. Understand and recognize the specificities of research in psychology and types of research most widely used in the area;2. Understand the importance and distinct objectives of exploratory and confirmatory multivariate data analysis;3. Know how to identify independent variables and dependent variables;4. Understand the confirmatory analysis of multivariate data in the reading of scientific articles;5. Appropriately choose between different techniques of confirmatory analysis of multivariate data according to the nature of the data under analysis and its assumptions;6. Know efficiently using computers and statistical software, enabling support to communication skills, collecting, and analyzing information.



Prerequisites (precedences) *

Not applicable.

Contents

Confirmatory Multivariate Analysis Methods

1. Introduction to Multivariate Data Analysis: objectives and applications. Exploratory Data Analysis and Confirmatory Data Analysis;
2. Two-way Analysis of Variance with one or more observations per cell: fixed, random and mixed model;
3. Analysis of Variance with repeated observations: one-way and two-way;
4. Multivariate Analysis of Variance (MANOVA): One-way, two-way, Multivariate Analysis of Variance with repeated observations;
5. Multiple Linear Regression: Introduction. Least squares method and parameter estimators of a multiple linear regression. Global adherence test and tests for the parameters of a regression. Limitations of Regression Analysis. Multicollinearity. Normality, linearity, homoscedasticity, residual autocorrelation.

Bibliography

- Howell, D. C. (2016). *Fundamental statistics for the behavioral sciences* (9th ed.). Wadsworth, Cengage Learning.
- Gray, C. D. & Kinnear, P. R. (2012). *SPSS 19 made simple*. Psychology Press.
- Marôco, J. (2018). *Análise estatística com o SPSS statistics 25* (7^a ed.). Editor: ReportNumber, Lda.
- Rencher, A. C., & Christensen, W. F. (2012). *Methods of multivariate analysis* (3rd. ed.). John Wiley & Sons. Inc.
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Pearson.

Teaching methods

Theoretical-Practical classes (15h TP + 3 OT): Guiding by the principle of "learning by doing", this course focuses on theoretical and practical classes: Will be used several strategies and activities, using masterly exposition, exposition through dialogue, group work and discussion, resolution of problems and data analysis (making use of statistical software) and critical reviews of data applications with different kinds of techniques.

Evaluation Regimes (General and/or Alternative)

Successfully completing the Postgraduate Diploma course is conditional on the realization of three



mandatory evaluations elements:

- 1. Global approval on Learning control sheets in each curricular unit.** These sheets are multiple choice sheets in a applied context with questions and random answers alternatives, and is performed in the *e-learning ULisboa (Moodle)* at the end of each c. u. (minimum grade of 9.5 values).
- 2. At the end of the first semester,** an individual work that consists of a critical analysis of a scientific article, namely its methodological section and how the research hypothesis/objectives/questions are well articulated with the proposed data analysis strategy, the results obtained, and the discussion presented (minimum grade of 9.5 values).
- 3. At the end of the second semester:** an individual work aimed at the application skills acquired in the various curricular units, applying advanced data analysis techniques, and including the analysis, interpretation and reporting of a set of data collected by application of a questionnaire.

Evaluation Elements (Dates due, weights, minimum required grades)

Approval in the **Postgraduate Diploma in Data Analysis in Psychology** requires obtaining a final weighted average (among the three assessment components) **greater than or equal to 9.5 values** among the following results:

- 1. Average of the grades of all the Learning Control Sheets related to each curricular unit, with a weighting of 50% in the final grade;**
- 2. Grade in the Critical analysis of a scientific article, with a weighting of 25% in the final grade;**
- 3. Grade in the Individual Work with a weighting of 25% in the final grade.**

Rules for grade improvement

The grade improvement may only occur in the assessment elements performed individually.

Rules for students having previously failed the course unit

Not applicable.

Requirements on attendance and punctuality

Classes operate in a hybrid regime and punctuality and student participation in at least 2/3 of the total number of classes are assumed.

Rules for special students (workers, elite athletes, student body leaders, military, fathers/mothers, with special needs) *

General rules of the FPUL.



Language of instruction

Portuguese but English reading domain is necessary.

Disciplinary violations and penalties

Consult the “Regulamento Geral de Avaliação de Conhecimentos e Competências dos Alunos ([RGACCA](#)) (Capítulo IV)”.

* If applicable