Faculdade de Psicologia
UNIVERSIDADE DE LISBOA

COURSE UNIT INFORMATION SHEET (*SYLLABUS*)

2022/2023

Study Program: Postgraduate Diploma in Data Analysis in Psychology

Name

Exploratory Data Analysis

Teaching staff
(Also indicate the Professor in charge)

- **Ana Isabel Gomes** (Professor in charge)

ECTS

- 3 ECTS

Functioning

- 9 hours/semester of Theorical-practical classes taught sequentially.

Learning goals

- Giving students the possibility of learning how to perform and interpret the statistical methodologies of data analysis most common in the field of Psychology

Skills to develop

1. To know how to identify variables and levels of measurement in research problems;
2. To know how to determine and interpret the descriptive characteristics of a data set (mean, mode, median, quartiles, variance, standard deviation, standard error, ...);
3. To know the concepts of population, sample, skewness, dispersion, as well as to determine and interpret association measures or correlation coefficients to analyse the relationship between qualitative or quantitative variables;
4. To know efficiently using computers and statistical software and interpret its outputs.

Prerequisites (precedences) *

Not applicable.

Contents

Exploratory Data Analysis

1. Brief review applied on Univariate Exploratory Analysis: Introduction; Population and samples; Random variable types and their classification; Data collection and graphical representation of data; Central tendency measures and percentiles; Dispersion measures; Extreme data detection (*outliers);* Skewness and Kurtosis coefficients); Robust descriptive measures (Measures resistant to the presence of extreme data or outliers).
2. Bivariate Exploratory Analysis: Introduction; Crosstabs; Association measures and correlate coefficients; Simple linear regression.

Bibliography

- Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4ª ed.). Sage Publications.
- Howell, D.C. (2017). *Fundamental statistics for the behavioral sciences (9ª* ed.). Cengage Learning.
- Marôco, J. (2014). *Análise estatística com o SPSS statistics* (6ª ed). Report Number, ISBN: 9789899676343.
- Moore, D. S., Notz, I.N., Fligner, M.A. (2017). *The basic practice of statistics* (8ª ed.). W. H. Freeman and Company.
- Moore, D. S., Notz, W.I., Fligner, M.A. (2014). *A Estatística básica e a sua prática* (6ª ed.). LTC.

Teaching methods

Theoretical-Practical classes (9h TP): Introduction of concepts based on the analysis of examples of real data, oriented to the area of Psychology, with the use of masterly and dialogued exposition. Classes are guided by the principle of "learning by doing" and consists of the discussion and resolution of applied exercises with the support of statistical software's, intended to cement and complement the knowledge acquired.

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 an 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 Program 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 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