

COURSE UNIT INFORMATION SHEET (SYLLABUS)

2021/2022

Study Program - Undergraduate Degree in Psychology

Name Introduction to Probability and Statistics Applied to Psychology
Teaching staff (Also indicate the Professor in charge) <ul style="list-style-type: none">▪ Ana Sousa Ferreira (Professor in charge)▪ Magda Sofia Roberto
ECTS <ul style="list-style-type: none">▪ 6 ECTS
Functioning <ul style="list-style-type: none">▪ 2 hours/week of Theoretical-Practical Classes, 2 hours/ week of Practical Classes, total of 14 weeks of classes.
Learning goals <ul style="list-style-type: none">▪ 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 <ol style="list-style-type: none">1. To know how to identify variables and levels of measurement in a research problem;2. To know how to calculate 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, probability and significance level as well as to determine and interpret association measures or correlation coefficients to analyse the relationship between qualitative or quantitative variables;4. To know how to apply the statistical inference principles and the procedures of hypothesis testing and confidence intervals;5. To know efficiently using computers and statistical software and interpret its outputs.



Prerequisites (precedences) *

Not applicable.

Contents

I. Exploratory Data Analysis

1. 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.

II. Statistical Inference:

1. Introduction; Statistical Inference; Population and sample; Probability Distributions; Statistical significance concept.
2. Inference to the mean value of a population. One sample: Introduction; Sampling Distribution of the Mean; Central Limit Theorem; Confidence intervals and Hypothesis tests for the mean; Inference with small samples; The Student t distribution; Inference with non-normal data.
3. Bivariate Statistical Inference.

Bibliography

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

Teaching methods

1. Theoretical-Practical classes: 2h a week. 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. Presentation of practical examples.
2. Practical classes: 2h a week. They are guided by the principle of "learning by doing" and are



part of the discussion and resolution of applied exercises, designed to cement and complement the knowledge acquired in theoretical classes. They are performed with the support of the statistical software IBM SPSS Statistics.

Evaluation Regimes (General and/or Alternative)

Completing successfully the course is conditional on the realization of two mandatory evaluations elements:

1. Continuous evaluation element: Global approval on five Forms is mandatory.

Realization of five Learning control sheets throughout the semester, on previously defined dates, on the contents of IPEAP. These forms, with random questions, are answered in the *e-learning ULisboa (Moodle)* on previously defined dates.

2. Final evaluation element: Approval in one written individual exam is mandatory.

a. The 1st period exam: This exam can be done by all students.

b. The 2nd period exam: This exam can be done by students who did not or did not obtain approval in the exam of the 1st period, or who want to improve the grade.

c. Special Period Exam: Students who qualify for enrolment at this time.

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

The approval in the course unit requires success in the element of continuous evaluation and in the final element of evaluation:

1. Continuous evaluation element: 35% of the final mark, carried out in five moments, according to the calendar provided by the teachers. The approval in the course unit is subject to the final average grade of the continuous assessment being **greater than or equal to 9.5 values**.

2. Final evaluation element: 65% of the final mark. The approval in the curricular unit is conditional on the grade of the final evaluation to be **greater than or equal to 8 values**.

Students will also be able to enjoy **one additional value** in their final grade, if they successfully answer two optional Forms, about the contents of IPEAP. These forms with random questions are answered in *e-learning ULisboa (Moodle)* on previously defined dates. This bonus is optional.

Rules for grade improvement

General rules of the FPUL.

Rules for students having previously failed the course unit

Students having previously failed the course unit who have passed the continuous evaluation, with approval, in the immediately preceding school year can keep the grade obtained if they wish. Attendance by repeat students is not mandatory, but it is advised.



Requirements on attendance and punctuality

Attendance and punctuality are presupposed, and student participation must be in at least 2/3 of the total number of classes.

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

According to the Evaluation of Learning Regulation of the Faculty of Psychology of the University of Lisbon, the following behaviors are considered as disciplinary offenses subject to disciplinary action:

- a) To use or attempt to use materials, information, notes, study resources or other objects and equipment not authorized in academic exercises;
- b) To help or try to help a colleague in committing a disciplinary offense;
- c) To submit the same written work for evaluation in different course units without permission from the instructors, even if with minor changes;
- d) To present someone else's work as one's own;
- e) To forge, or change without permission from the author, any information or citation in an academic work;
- f) To interfere, change or attempt to change grades;
- g) To try to prevent or interfere with the proper functioning of classes, research or other academic activities;
- h) To make false accusations regarding instructors, governance bodies, other students or non-teaching staff of the FPUL;
- i) To falsify signatures in attendance sheets, documents relating to evaluation elements or in any official document relating to an academic process or status.

Disciplinary offenses committed in any assessment element can lead to its annulment, and must be reported to the Pedagogical Council or, considering their gravity and repetition, may lead to other penalties, to be determined by the Rector of the University of Lisbon.

* If applicable