

Course Unit	Statistics	Field of study	Mathematical and Quantitative Methods
Bachelor in	Informatics and Communications	School	School of Public Management, Communication and Tourism
Academic Year	2023/2024	Year of study	2
Type	Semestral	Semester	2
Workload (hours)	162	Contact hours	T - , TP 60, PL - , TC - , S - , E - , OT 20, O -
		Level	1-2
		ECTS credits	6.0
		Code	9188-320-2202-00-23

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Maria de la Salette Dias Esteves

### Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. Sort, organize and present data for a situation or a phenomenon;
2. Interpret tables and graphs of statistical data;
3. Inferring population parameters from sample parameters
4. Develop a critical sense in relation to the exposure mode information and make decisions in the face of statistical evidence;
5. Perform a statistical treatment of data in computer-based support in Jamovi.

### Prerequisites

Before the course unit the learner is expected to be able to:  
Have knowledge in mathematics.

### Course contents

Introduction to statistical analysis. Descriptive statistics. An introduction to probability. Distributions. Confidence intervals.

### Course contents (extended version)

1. Introduction to statistical analysis
  - Why study statistics
  - Descriptive and inferential statistics
  - Populations and samples
2. Descriptive statistics
  - Exploratory analysis of data
  - Presentation and summarization of data
  - Association and relations between variables
3. Probability Theory
  - Introduction: randomized trials; Space results and events.
  - Probability Concepts.
  - Conditional probability.
  - Total Probability and Bayes Theorems.
  - Independence.
4. Distributions
  - Random variables
  - Parameters of the distributions
  - Discrete random variables
  - Continuous random variables
  - Approximation Theorems in Probability
  - Sampling and point estimation
5. Confidence intervals
  - Confidence interval definition
  - Specification of confidence intervals
  - Confidence intervals for parameters of a population
  - Confidence intervals for certain operations between the two populations parameters
  - Estimating sample size

### Recommended reading

1. Belfiore, P. (2015). Estatística Aplicada a administração, contabilidade e economia com Excel e SPSS. LTC.
2. Gama, S. & Pedrosa, A. C. (2016). Introdução Computacional à Probabilidade e Estatística (3.ª Ed. ), Porto Editora.
3. Levine, D. , Szabat, K. , & Stephan, D. (2016). Statistics For Managers Using Microsoft Excel (8ª Ed. ). Pearson Edition.
4. Knapp, H. (2014). Introductory Statistics Using SPSS. Londres: Sage Publications inc.
5. Maroco, J. (2014). Análise Estatística com o SPSS Statistics (6.ª Ed). Report Number.

### Teaching and learning methods

For each subject there are, periodically and in advance, proposed work modules. The student should study each previously, being encouraged to develop teamwork. The classes will be oriented in order to: overcome difficulties, explore examples connected to practical cases and discuss work proposals.

### Assessment methods

1. Final evaluation I - (Regular, Student Worker) (Final, Supplementary)
  - Intermediate Written Test - 40% (Admission requirements: attendance, except for Student-Workers.)
  - Final Written Exam - 60% (Admission requirements: attendance, except for Student-Workers.)
2. Final evaluation II - (Regular, Student Worker) (Final, Supplementary)
  - Intermediate Written Test - 60% (Admission requirements: attendance, except for Student-Workers.)
  - Final Written Exam - 40% (Admission requirements: attendance, except for Student-Workers.)
3. Final evaluation III - (Regular, Student Worker) (Final, Supplementary, Special)
  - Final Written Exam - 100%
4. Incoming and outgoing students - (Regular, Student Worker) (Final, Supplementary, Special)
  - Practical Work - 50%
  - Final Written Exam - 50%

**Language of instruction**

Portuguese, with additional English support for foreign students.

**Electronic validation**

Maria de la Salette Dias Esteves	Elisabete da Anunciacao Paulo Morais	Anabela Neves Alves de Pinho	Luisa Margarida Barata Lopes
01-03-2024	01-03-2024	01-03-2024	12-03-2024