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Course Unit	Statistics			Field of study	Mathematical and Quantitative Methods	
Bachelor in	Public Management and Administration			School	School of Public Management, Communication and Tourism	
Academic Year	2022/2023	Year of study	2	Level	1-2	ECTS credits	6.0
Type	Semestral	Semester	2	Code	9165-315-2203-00-22	

Workload (hours)	162	Contact hours	T	-	TP	50	PL	10	TC	-	S	-	E	-	OT	20	O	-

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 Salete 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. Figueiredo, F. , Figueiredo, A. , Ramos, A. , & Teles, P. (2009). Estatística Descritiva e Probabilidades (2. ª Ed.). Lisboa: Escolar Editora. ISBN: 9789725922491.
2. Gama, S. & Pedrosa, A. C. (2016). Introdução Computacional à Probabilidade e Estatística (3. ª Ed.). Porto: Porto Editora. ISBN: 9789720019905.
3. Hall, A. , Neves, C. , & Pereira, A. (2011). Grande Maratona de Estatística no SPSS. Lisboa: Escolar Editora. ISBN: 9789725923016.
4. Knapp, H. (2014). Introductory Statistics Using SPSS. Londres: Sage Publications inc. ISBN: 9781452277691.
5. Maroco, J. (2014). Análise Estatística com o SPSS Statistics (6. ª Éd). Lisboa: Report Number. ISBN: 9789899676343.

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. Distributed evaluation I - (Regular, Student Worker) (Final, Supplementary)
    - Practical Work - 20%
    - Intermediate Written Test - 40%
    - Final Written Exam - 40%
2. Distributed evaluation II - (Regular, Student Worker) (Final, Supplementary)
    - Intermediate Written Test - 50%
    - Final Written Exam - 50%
3. Distributed evaluation III - (Regular, Student Worker) (Supplementary, Special)
    - Practical Work - 20%
    - Final Written Exam - 80%
4. Evaluation by final exam - (Regular, Student Worker) (Supplementary, Special)

Assessment methods

   - Final Written Exam - 100%
5. 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

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26-02-2023	02-03-2023	03-03-2023	13-03-2023