INSTITUTO POLITÉCNICO DE BRAGANÇA

Course Unit	Statistics			Field of study	Mathematics and Statistics	
Bachelor in	Environmental Engineering			School	School of Agriculture	
Academic Year	2022/2023	Year of study	2	Level	1-2	ECTS credits 6.0
Type	Semestral	Semester	1	Code	9099-309-2101-00-22	

Workload (hours)	162	Contact hours	T	30	TP	-	PL	30	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)	Luísa Maria Lopes Pires Genésio

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
1. do a correct sampling
2. characterize data
3. apply statistics methods
4. To interpret the results

Prerequisites

Before the course unit the learner is expected to be able to:
Don't have

Course contents

Review of the techniques of integration Descriptive statistics Probability theory. Probability Distribution Functions. Statistics Estimation (one Sample) Simple Regression analysis

Course contents (extended version)

1. Integral calculus review
2. Descriptive Statistics
    - Introduction
    - Statistics objectives
    - Types of data and measurement uncertainties
    - Population and sample
    - Statistics and central tendency measures
    - Dispersion measures
    - Graphical presentation of the frequency table
    - Others statistics
3. Probability Theory
    - Basic notions
    - Probability
    - Frequency distributions
    - Random variables
4. Probability Distribution
    - Introduction
    - Discrete distributions
    - Hypergeometric Distribution
    - Binomial distribution
    - Poisson distribution
    - Continuous distributions
    - Gauss distribution
5. Significance tests
    - Statistical hypothesis
    - Null hypothesis
    - Significance level
6. Sampling distribution
    - Distribution of sample mean
    - Central limit theorem
7. Non-parametris and parametric tests (one sample)
8. Simple linear regression

Recommended reading

Guimarães, R. , & J. Cabral , J. (2010). Estatistica. Verlag Dashöfer Portugal.

Teaching and learning methods

Expository, demonstrative and intercative

Assessment methods

1. Alternative 1 - (Regular, Student Worker) (Final)
    - Intermediate Written Test - 50%
    - Intermediate Written Test - 50%
2. Alternativa 2 - (Regular, Student Worker) (Supplementary, Special)
    - Final Written Exam - 100%

Language of instruction

Portuguese

Electronic validation

Luísa Maria Lopes Pires Genésio	Carlos Manuel Mesquita Morais	Artur Jorge de Jesus Gonçalves	Paula Sofia Alves do Cabo
07-12-2022	08-12-2022	08-12-2022	13-12-2022