INSTITUTO POLITÉCNICO DE BRAGANÇA

Course Unit	Biostatistics		Field of study	Science Base
Bachelor in	Biomedical Laboratory Sciences		School	School of Health
Academic Year	2022/2023	Year of study	1	Level	1-1	ECTS credits	4.0
Type	Semestral	Semester	1	Code	9995-550-1102-00-22

Workload (hours)	108	Contact hours	T	-	TP	40	PL	-	TC	-	S	-	E	-	OT	5	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)	Marcio Soares Carocho

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 statistic methods
4. 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 Random variables. 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 sampling
    - Statistics and central tendency measures
    - Dispersion measures
    - Graphical presentation of the frequency table
    - Other statistics
3. Probability Theory
    - Basic notions
    - Probability
    - Frequency distributios
    - Random variables
4. Probability Distribution
    - Introduction
    - Discrete distributions
    - Hypergeometric Distribution
    - Binomial distribution
    - Poisson distribution
    - Random variables
    - 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

1. Triola, M.F., Biostatistics for the biological and health sciences (2013). Pearson Education
2. Guimarães, R. C. & Cabral, J. (1999). Estatística. Lisboa: Mac Graw-Hill.
3. Patrício, M. Loureiro, M. , Caramelo, F. , Bioestatística com SPSS, abordagem prática, 2017, Plátano Editora

Teaching and learning methods

Expository, demonstrative and intercative

Assessment methods

1. Alternative Working students - (Student Worker) (Final, Supplementary, Special)
    - Final Written Exam - 100%
2. Ordinary Alternative - (Regular) (Final, Supplementary)
    - Final Written Exam - 100%

Language of instruction

Portuguese

Electronic validation

Marcio Soares Carocho	Josiana Adelaide Vaz	Ana Maria Nunes Português Galvão	Adília Maria Pires da Silva Fernandes
03-11-2022	03-11-2022	03-11-2022	03-11-2022