

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
Type	Semestral	Semester	1
Workload (hours)	108	Contact hours	T - , TP 40 , PL - , TC - , S - , E - , OT 5 , O -
Level	1-1	ECTS credits	4.0
Code	9995-550-1102-00-22		

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 Carochó

#### 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 distributions
  - 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-parametric 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 interactive

#### 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 Caroch	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