

Course Unit	Biostatistics	Field of study	Science Base
Bachelor in	Biomedical Laboratory Sciences	School	School of Health
Academic Year	2023/2024	Year of study	1
Type	Semestral	Semester	1
Workload (hours)	108	Contact hours	T - 40 TP - 40 PL - TC - S - E - OT 5 O -
Level	1-1	ECTS credits	4.0
Code	9995-804-1103-00-23		

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) 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 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. Guimarães, R. , & Cabral, J. (2010). Estatística. Lisboa: McGraw-Hill.
2. Spiegel, M. , Srinivasan, R. , & Schiller, J. (2013). Probabilidade e Estatística. Rio de Janeiro: Bookman.
3. Pagano, M. , & Gauvreau, K. (2004). Princípios de Bioestatística, São Paulo: Pioneira Thomson Learning.
4. Petrie, A. , & Sabin, C. (2001). Compêndio de estatística Médica, Lisboa: Instituto Piaget. .
5. Reis, E. , Andrade, R. , calapez, T. & Melo, P. (2015). Estatística Aplicada, Vol. 1. Lisboa: Edições Sílabo.

#### Teaching and learning methods

Expository Method. Demonstrative Method. Intercative Method.

#### Assessment methods

1. Alternative 1 - (Regular, Student Worker) (Final)
  - Intermediate Written Test - 50%
  - Final Written Exam - 50%
2. Alternativa 2 - (Student Worker) (Final)
  - Final Written Exam - 100%
3. Alternative 3 - (Regular, Student Worker) (Supplementary, Special)

**Assessment methods**

- Final Written Exam - 100%

**Language of instruction**

Portuguese

**Electronic validation**

Luísa Maria Lopes Pires Genésio	Maria Cristina Martins Teixeira	Ana Maria Nunes Português Galvão	Adília Maria Pires da Silva Fernandes
26-10-2023	26-10-2023	05-11-2023	05-11-2023