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| 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 |
| Level | 1-1 | ECTS credits | 4.0 |
| 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 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

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|----------------------|----------------------|----------------------------------|---------------------------------------|
| 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 |