

Course Unit	Research Methodology and Data Analysis in Sports Science	Field of study	Sport Sciences
Bachelor in	Sports - Minor in Recreation and Leisure	School	School of Education
Academic Year	2023/2024	Year of study	1
Type	Semestral	Semester	2
Workload (hours)	189	Contact hours	T 30 TP 51 PL - TC - S - E - OT - O -
Level	1-1	ECTS credits	7.0
Code	9563-625-1205-00-23		

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) Vítor Pires Lopes

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. To elaborate a scientific report with goals and hypothesis
2. To analyze data with descriptive statistic
3. To do univariate and bivariate inferential statistics analysis, both parametric and no parametric, such: correlation, regression and differences between groups

Prerequisites

Before the course unit the learner is expected to be able to:
Not applicable

Course contents

Methods of research an introduction. Descriptive statistics. Hypothesis testing. Testing Differences Between Means; Student t test; ANOVA; Repeated measures ANOVA: Qui-Squared. Correlation. Linear regression Using of specific software

Course contents (extended version)

1. Descriptive statistic
 - Measures of central tendency
 - Measures of position
 - Measures of dispersion
 - Asymmetry and kurtosis
2. Inferential statistic.
 - Statistical probability and normal distribution.
 - Confidence intervals. Significance level and p values.
3. Student t test
 - Student t for independent groups
 - Student t for paired groups
4. Analysis of Variance (ANOVA)
 - One way ANOVA
 - ANOVA Repeated measures
 - Post-hoc tests and planed comparison
5. Chi-squared test
 - Single Sample Chi Square Test
 - two-way Chi Square
6. Correlation
 - Product-moment Pearson r
 - Spearman rs
7. Linear regression
 - Regression coefficients
 - Estimation error
 - sum of squares partition
8. An introduction to research methods
 - Project preparation and investigation report

Recommended reading

1. Elsa Negas (2021) Estatística Descritiva - Explicação Teórica, Casos de Aplicações e Exercícios Resolvidos. Lisboa: Edições Sílabo
2. Reis, Felipa Lopes (2022) Investigação Científica e Trabalhos Académicos – Guia Prático 2ª ed. Lisboa: Edições Sílabo
3. Calapez, Teresa; Melo, Paulo; Andrade, Rosa; Reis, Elizabeth (2021) Estatística Aplicada – Vol. 1. 7ª Edição Lisboa: Edições Sílabo.
4. Argyrous, G. (2000). Statistics for social and health research. With a guide to SPSS. London: Sage

Teaching and learning methods

Every subject will be taught in an applying way with practical examples. Inverted classroom teaching method may be adopted in some subjects

Assessment methods

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

Language of instruction

Portuguese

Electronic validation

Vítor Pires Lopes	Pedro Miguel Monteiro Rodrigues	Pedro Miguel Queirós Pimenta Magalhaes	Carlos Manuel Costa Teixeira
30-01-2024	25-02-2024	26-02-2024	27-02-2024