INSTITUTO POLITÉCNICO DE BRAGANÇA

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| Course Unit | Research Methodology and Data Analysis in Health and Physical Exercise | | | Field of study | Sport Sciences | | | | | | | | |
| Master in | Physical Exercise and Health | | | School | School of Education | | | | | | | | |
| Academic Year | 2023/2024 | Year of study | 1 | Level | 2-1 | ECTS credits | 6.0 | | | | | | |
| Type | Semestral | Semester | 1 | Code | 6125-520-1103-00-23 | | | | | | | | |
| Workload (hours) | 162 | Contact hours | T 5 | TP 19 | PL 25 | 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): Vítor Pires Lopes

## Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
1. To understand the phases and the process of research
2. To know the main design research in exercise and health
3. To know the main statistical procedures used in each of the research design study
4. Using statistical software to assist the analysis involved with quantitative research techniques

## Prerequisites

Before the course unit the learner is expected to be able to:
Basic knowledge about statistics

## Course contents

Knowledge and science. Theories, models and hypotheses. The problem of measurement in quantitative studies. Research methods and designs. Data analysis with specific software.

## Course contents (extended version)

1. Knowledge and science
   - Bibliographic research
   - Research project
   - Struture of scientific paper
   - Structure of research report
2. The problem of measurement in quantitative studies.
   - Measurement errors
   - Reliability, validity, objectivity and internal consistency
3. Research methods and designs.
   - Longitudinal, cross-sectional and experimental designs
4. Data analysis with specific software.
   - Exploratory data analysis
   - Analysis os cross-sectional data
   - Analysis of longitudinal data
   - Correlation and prediction
5. Introdution to meta-analysis
6. Introdution to the hierarchical linear model (HLM)

## Recommended reading


1. Larry B. Christensen, R. Burke Johnson, Lisa A. Turner (2010) Research Methods, Design, and Analysis, 11th Edition. Allyn and Bacon: Boston
2. Cohen, J. , P. Cohen, et al. (2003). Applied multiple refression/correlation analysis for the behavioral sciences. Mahwah, Lawrence ErlbaummAssosiates, Inc. , Publishers.
3. Tejedor FJT. Análisis de varianza. Madrid: La Muralla; 1999
4. Hox, J. (2002). Multilevel analysis. Techniques and applications. Mahwah, Lawrence Erlbaumm Associates, Inc. , Publishers.
5. Escobar M. (1999). Análisis gráfico / exploratório. Madrid: La Muralla


## Teaching and learning methods

Every topic will be taught with practical examples. The use of data analysis software will be done at the same time that the topics are taught.

## Assessment methods

1. continuous evaluation - (Regular, Student Worker) (Final)
   - Intermediate Written Test - 50%
   - Practical Work - 50% (Resolution of Worksheets)
2. Exam evaluation - (Regular, Student Worker) (Supplementary, Special)
   - Final Written Exam - 50%
   - Practical Work - 50% (Resolution of Worksheets (will be take into account the Resolution of Worksheet already done))

## 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 |