COURSE DATA

DATA SUBJECT

Code: 33247
Name: Statistics
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1312 - Degree in Physical Activity and Sport Sciences	Facultat de Ciències de l'Activitat Física i Esports	1	First quarter, Second quarter
1331 - Degree in Physical Activity and Sport Sciences (Ont)	Facultat de Ciències de l'Activitat Física i Esports	1	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1312 - Degree in Physical Activity and Sport Sciences	Statistics	BASIC
1331 - Degree in Physical Activity and Sport Sciences (Ont)	Estadística	BASIC

COORDINATION

PALMI PERALES FRANCISCO

SUMMARY

Statistical matter is a basic subject 1st year Bachelor of Science in Physical Activity and Sport. As shown in competition, it aims to bring students to Statistics in order to acquire skills to plan statistical studies to prepare and submit a study report made.Statistics course is conceived as an essential material for the formation of any experimental scientist. It aims to provide students with the tools and concepts needed to record the facts, analyze them in some of its aspects, express mathematically and investigate the relationships between these facts, if possible, make laws or draw conclusions. For this, two blocks will be addressed:Descriptive Statistics: description of the characteristics of a sample.Inference: Using data from a sample to infer results or test hypotheses about the population to which they belong

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

No previous knowledge or specified enrollment restrictions with subjects in the curriculum.

COMPETENCES / LEARNING OUTCOMES

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Analyse the data observed using appropriate software.

Correctly interpret the results provided by the software used.

Describe and synthesise the dataset observed in the experiment.

Prepare and issue a report of the study conducted.

DESCRIPTION OF CONTENTS

1. Introduction to Statistics

Concept and classification of Statistics. Measurement scales. basic definitions. Sampling.

2. Description of a sample

Data organization: frequency tables and graphs. Numerical description of a sample: measures of central tendency, position, dispersion, and shape.

3. Description of a population: probability distributions

Concept of probability. Discrete and continuous probability distributions. Distribution of the sample mean. Central Limit Theorem.

4. Inferential analysis of the population mean

Point estimation. Confidence intervals for the sample mean. Sample size selection. Introduction to hypothesis testing. Type I and Type II errors. Significance level and p-value. Power of the test. Tests on the mean.

5. Inference on the mean in two or more populations

Introduction. Independent and paired samples. Confidence interval and hypothesis testing for the difference between two means. Introduction to one-way analysis of variance (ANOVA).

6. Categorical data analysis

Introduction. Confidence interval for a proportion. Test on a proportion. Comparison of two proportions. Contingency tables.

7. Relationship between two variables

Bivariate frequency distribution. Graphical representations. Marginal distributions. Concept and types of correlation. Linear correlation coefficient. Linear regression: least squares regression lines.

8. practicals

1. Introduction to R.
2. graphic and numerical analysis of a data set
3. A relationship between two variables: setting and correlation
4. Inference on the mean of a population
5. Analysis of two samples
6. Categorical Data Analysis

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	45,00
Classroom practices	15,00
Total hours	**60,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	0,00
Independent study and work	50,00
Preparation of lessons	10,00
Preparation for assessment activities	25,00
Resolution of case studies	5,00
Total hours	**90,00**

TEACHING METHODOLOGY

The matter is structured in 3 hours of theory and one practice per week (in groups A and B, will be held two hours practice every other week, over a quarter).

Theoretical sessions: will be discussed each of the topics covered by the program of the subject and explained some problems issues will be solved. These issues and relationship problems, students will be provided through the virtual classroom.

Practical sessions: Practices are held in the computer room with statistical software R topics explained in the theoretical sessions. The relationship practices students will be provided through the virtual classroom.

EVALUATION

A theoretical-practical exam will be carried out, and its resolution may require interpreting different results presented in the standard format of the statistical software used. This exam will account for 70% of the final grade.

Practical midterm tests will be conducted, which will account for 30% of the final grade. The grades obtained in these midterm tests will be kept for the resit (second sitting). Regardless of class attendance, students must complete these midterm tests. This 30% of the final grade will be obtained solely through these tests and not in any other way.

To pass the course, it is necessary to achieve a mark equal to or greater than 5 out of 10 in the theoretical-practical exam and to have an average grade of at least 3 out of 10 in the midterm tests. If the average

grade of the midterms is below 3, students will have the opportunity to retake this part through a similar practical test, in addition to the final exam (in both the first and second sittings).

REFERENCES

- Fundamentals of Statistics for the Life Sciences
  Samuels, Myra L.; Witmer, Jeffrey
  Pearson
  ISBN: 9788478291410
- Statistics for Sports and Exercise Science. A practical approach. Newell, J; Aitchison, T. and Grant, S. Taylor and Francis, 2010. Guía para el análisis estadístico con R-Commander Alea, M.V.; Jiménez, E., et al. Universitat de Barcelona. 2014 Using the R-Commander: A Post-and-Click interface for R. Fox, J. CRC Press, 2016 OpenIntro Statistics. Díez, D.; Bar, C.D. et al. OpenIntro, 2022. (Disponible en openintro.org)