

**COURSE DATA****Data Subject**

|                      |             |
|----------------------|-------------|
| <b>Code</b>          | 33247       |
| <b>Name</b>          | Statistics  |
| <b>Cycle</b>         | Grade       |
| <b>ECTS Credits</b>  | 6.0         |
| <b>Academic year</b> | 2020 - 2021 |

**Study (s)**

| <b>Degree</b>                                                     | <b>Center</b>                                    | <b>Acad. year</b> | <b>Period</b> |
|-------------------------------------------------------------------|--------------------------------------------------|-------------------|---------------|
| 1312 - Degree in Physical Activity and Sport Sciences             | Faculty of Physical Education and Sport Sciences | 1                 | Other cases   |
| 1331 - Degree in Physical Activity and Sport Sciences (Ontinyent) | Faculty of Physical Education and Sport Sciences | 1                 | Second term   |

**Subject-matter**

| <b>Degree</b>                                                     | <b>Subject-matter</b> | <b>Character</b> |
|-------------------------------------------------------------------|-----------------------|------------------|
| 1312 - Degree in Physical Activity and Sport Sciences             | 5 - Statistics        | Basic Training   |
| 1331 - Degree in Physical Activity and Sport Sciences (Ontinyent) | 5 - Estadística       | Basic Training   |

**Coordination**

| <b>Name</b>                | <b>Department</b>                         |
|----------------------------|-------------------------------------------|
| FUSTER ORTI, MARIA ANGELES | 130 - Statistics and Operational Research |

**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.

## OUTCOMES

### 1312 - Degree in Physical Activity and Sport Sciences

- Describe and synthesise the dataset observed in the experiment.
- Analyse the data observed using appropriate software.
- Correctly interpret the results provided by the software used.
- Prepare and issue a report of the study conducted.

## LEARNING OUTCOMES

The student, to study the subject Statistics, will know the statistical problems most frequently used, acquire the necessary skills to plan statistical studies, both descriptively and with the most basic procedures of statistical inference (estimation and hypothesis testing), properly synthesize set of data, analyze it with the right software, correctly interpret the results and prepare a report of the study conducted.

## DESCRIPTION OF CONTENTS

### 1. Introduction to Statistics

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

### 2. Sample description

Organization of data: frequency tables and graphs. numerical description of a sample: measures of central tendency, position, dispersion and form



### **3. Relationship between two variables**

dimensional frequency distribution. graphic representations. marginal distributions. Concept and types of correlation. Linear correlation coefficient. Linear Regression straight least squares regression

### **4. Description of a population: Probability distributions**

Probability concept. Discrete and continuous probability distributions. Distribution of the sample mean. Central limit theorem.

### **5. inferential analysis of a population mean**

point estimate. Confidence intervals for the population mean. Selection of sample size. Introduction to contrast hipótesis. Contrastes on average

### **6. Inference average in two or more populations**

Introduction. independent samples and paired samples. Confidence interval and hypothesis testing for the difference of two means. Introduction to analysis of variance of a factor

### **7. Categorical Data Analysis**

Introduction. Confidence interval of proportion. Contrast on a ratio. Comparison of two proportions. Contingency tables

### **8. practicals in Computer Room**

1. Introduction to Excel: data management and formulas
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

| ACTIVITY                             | Hours         | % To be attended |
|--------------------------------------|---------------|------------------|
| Theory classes                       | 45,00         | 100              |
| Classroom practices                  | 15,00         | 100              |
| Study and independent work           | 50,00         | 0                |
| Preparation of evaluation activities | 25,00         | 0                |
| Preparing lectures                   | 10,00         | 0                |
| Resolution of case studies           | 5,00          | 0                |
| <b>TOTAL</b>                         | <b>150,00</b> |                  |

## 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 Excel topics explained in the theoretical sessions. The relationship practices students will be provided through the virtual classroom.

## EVALUATION

The perform a theoretical and practical examination whose resolution may require different interpretation of the results presented in the standard format used statistical software. It will mean 75% of the final grade. The realization of individual questionnaires, through the virtual classroom, proposed to the theoretical end of each block. Will account for 20% of the final grade. The remaining 5% will be achieved with the assistance, and use, practical sessions in the computer room. For the calculation of the final mark obtaining a rating equal to or greater than 4 you will be needed in the examination.

## REFERENCES

### Basic

1. Avilés García, F. (1995). Lecciones de Estadística Descriptiva. CEF. Madrid. ISBN: 8445505845.
2. Carlberg, C. (2012). Análisis Estadístico con Excel. Anaya Multimedia. Madrid. ISBN: 9788441530263.
3. Cobo, Erik. (2007). Bioestadística para no estadísticos: bases para interpretar artículos científicos. Elsevier Masson. ISBN: 9788445817827.
4. David M. Diez, Christofer D. Barr, Mine Çetinkaya-Rundel OpenIntro Statistics (2nd ed.) pdf gratis disponible en [openintro.org](https://openintro.org) (2013).
5. Martínez-González, M.A. (2020). Bioestadística Amigable. Elsevier. ISBN: 9788491134077.
6. Milton, J.S. (2007). Estadística para Biología y Ciencias de la Salud. Ed McGraw-Hill



Interamericana. Madrid. ISBN: 9788448159962.

7. Mullor, R y Fajardo, M<sup>a</sup> D. (2000). Manual práctico de estadística aplicada a las ciencias sociales. Ariel. ISBN: 8434428725.

8. Norman, G. R. (1996). Bioestadística. Doyma Libros. ISBN: 8481741507.

9. Peña, D. y Romo, J. (1997). Introducción a la Estadística para las Ciencias Sociales. McGraw-Hill. ISBN: 8448116178.

10. Rosner, B. (2011). Fundamentals of biostatistics. Brooks/Cole. ISBN: 9780538735896.

11. Ross, SM. (2004). Introduction to probability and statistics for engineers and scientists. John Wiley and sons. ISBN: 9780125980579.

12. Samuels, ML., Witmer, JA y Schaffner, A. (2012). Fundamentos de Estadística para las ciencias de la vida. Pearson Educación. ISBN: 9788478291373.

## ADDENDUM COVID-19

**This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council**

### ADENDA A LA GUÍA DOCENTE MOTIVADA POR COVID 19 - 1º y 2º CUATRIMESTRE (1º y 2º CONVOCATORIA)

A) Se realizará un examen teórico-práctico, la resolución del cual podrá requerir la interpretación de distintos resultados presentados en formato estándar del programa estadístico utilizado. Se realizará a través del aula virtual, como tarea a entregar (en el formato que se especificará) en el tiempo indicado, en la fecha y hora prevista en el calendario de exámenes aprobado en la titulación. Se generarán varias versiones similares del examen y a cada alumno se le indicará el que debe resolver (asignación aleatoria); la realización de otro examen que no sea el indicado supondrá el suspenso del mismo. La calificación del examen supondrá el 60% de la nota final

En caso de que algún alumno sufra algún problema de conexión de red en el momento del examen, debe comunicarlo lo antes posible a la profesora y se le realizará un examen oral por videoconferencia lo más pronto posible.

B) La realización de cuestionarios individuales, a través del aula virtual, propuestos a la finalización de cada bloque teórico. La calificación media de los cuestionarios supondrá el 30% de la nota final.

C) El 10% restante se obtendrá con la asistencia, y aprovechamiento, de las sesiones prácticas en el aula de informática. Un 5% con la asistencia a las prácticas realizadas presencialmente y el otro 5% con la realización correcta de las tareas planteadas.

Para el cálculo de la nota final será necesaria la obtención de una calificación igual o superior a 4 en el examen.



***Addendum to the teaching guide for the 2nd term of the academic year 2020/2021:***

The teaching from February 2021 will start on 8 February, in online and synchronous mode, and will be maintained until the Consell de Govern de la Universitat de València reports on its completion and/or modifications.

