



IDENTIFYING DATA

Statistics: Research methodology & statistics in physical activity and sports

Subject	Statistics: Research methodology & statistics in physical activity and sports			
Code	P02G050V01302			
Study programme	(*)Grao en Ciencias da Actividade Física e do Deporte			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Basic education	2nd	2nd
Teaching language	Spanish Galician			
Department				
Coordinator	Novegil Souto, José Vicente Iglesias Pérez, María Carmen			
Lecturers	Iglesias Pérez, María Carmen Novegil Souto, José Vicente Vidal Puga, Juan José			
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Web				
General description				

Competencies

Code	
B2	(*)Coñecemento e comprensión da literatura científica do ámbito da actividade física e o deporte
B12	(*)Aplicación das tecnoloxías da información e comunicación (TIC) ao ámbito das Ciencias da Actividade Física e do Deporte
B13	(*)Hábitos de excelencia e calidade no exercicio profesional
B14	(*)Utilización da información científica básica aplicada á actividade física e ao deporte nas súas diferentes manifestacións
B24	(*)Actuación dentro dos principios éticos necesarios para o correcto exercicio profesional
B25	(*)Habilidade de liderado, capacidade de relación interpersoal e traballo en equipo
B26	(*)Adaptación a novas situacións, á resolución de problemas e á aprendizaxe autónoma

Learning aims

Expected results from this subject	Training and Learning Results
To achieve a basic level in methodology of scientific research and statistical methods and to apply them to analyze problems in Physical Activity and Sports Sciences.	B14
To understand the scientific literature in the field of Physical Activity and Sports Sciences, focusing on the statistical methods used in research studies.	
To know how to apply information and communication technologies (ICT) tools to the field of Physical Activity and Sport Sciences and, specifically, to use statistical software and Internet resources.	B12
To develop the ability of work in teams, focusing on the values of effort and respect for others, without taking advantage of others work.	B25
To develop skills for the adaptation to new situations, the resolution of problems and the self-learning.	B26
To promote principles of professional excellence and quality.	B13

To know the statistical ethical principles, regarding to seek permission to collect data sets, to keep the statistical secret and not to manipulate the report. B24

To know the characteristics of the scientific thought: to question the intuitive ideas, to get data, to do a critical analysis of the observations, to argue and to take of decisions from rational criteria and critical thinking. B2
B14
B26

Contents

Topic	
Lesson 1. Introduction to the research methodology in Physical Activity and Sport Sciences.	1.1 The scientific method of resolution of problems. 1.2 Parts of a paper and a tesis. 1.3 Types of research: analytical, descriptive, experimental, qualitative. 1.4 Reliability and validity.
Lesson 2. An introduction to Statistics. One dimensional descriptive statistics.	2.1 Statistics and scientific research. 2.2 Basic concepts: population, sample, variables. 2.3 Tabulated and graphical description. 2.4 Measures of central tendency, spread, skewness, and kurtosis.
Lesson 3. Two dimensional descriptive statistics .	3.1 Qualitative data analysis: contingency tables, graphical description and dependency measures. 3.2 Box-plot diagram of a variable recorded by groups. Comparison of mean and variance. 3.3 Covariance and linear correlation. 3.4 Simple linear regression model.
Lesson 4. Introduction to Statistical Inference and Probability models.	4.1. Introduction to Statistical Inference. 4.2. Probability: basic concepts. 4.3. Random variable. 4.4. The Normal distribution. Applications. 4.5. Point estimation. The sample mean. 4.6. Calculation of the sample size. 4.7. Confidence intervals for mean and proportion.
Lesson 5. Testing of Hypothesis.	5.1 Definition and classical methodology of testing: types of hypothesis, associated errors, significance level, critical region. 5.2 p-value. 5.3 Two sample t-test 5.4 chi-squared test of independence. 5.5 Shapiro-Wilks test for normality. 5.6 Pearson correlation test.

Planning

	Class hours	Hours outside the classroom	Total hours
Master Session	22.5	22.5	45
Practice in computer rooms	26	13	39
Autonomous practices through ICT	0	25	25
Short answer tests	2	15	17
Practical tests, real task execution and / or simulated.	4	20	24

*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies

	Description
Master Session	Professor explanation on theoretical concepts, that will have to study out of class. At the beginning of each lesson, students will be provided with material for a better comprehension of the class.
Practice in computer rooms	Statistical software will be used for the analysis of data, mainly EXCEL, CALC and R Commander. With regard to Lesson 1, the practices will be focused on the analysis of research papers: type, schedule, hypothesis, methodologies, results and conclusions.
Autonomous practices through ICT	Work in teams for the analysis of data using statistical software focused on the application and interpretation of concepts and models.

Personalized attention

Tests	Description
Practical tests, real task execution and / or simulated.	Doubts will be solved through academic tutoring.

Assessment

	Description	Qualification
Master Session	It will be assessed by means of a test of short answers.	0
Practice in computer rooms	They will be assessed by means of practical tests using computers.	0
Autonomous practices through ICT	Each activity of working in team will have a score. A mean of all activity scores will be obtained.	20
Short answer tests	Test with short questions and problems about concepts, models and problems exposed and discussed in theoretical and practical sessions.	40
Practical tests, real task execution and / or simulated.	There are, tentatively, two computer tests: 1. Descriptive analysis: Lessons 2 and 3. 2. Inference analysis: Lessons 1,4 and 5.	40

Other comments on the Evaluation

In each test is necessary to have a minimum mark of 4 out of 10.

To pass the subject it is necessary to obtain a final mark greater than or equal to 5.

If a student does not work systematically in team activities, he will be able to be reject from the group.

In the second call, each student will be repeat the parts with score less than 4.

The team activities will not be recoverable.

Sources of information

Recommendations