29202 - Biostatistics

Información del Plan Docente

Academic Year	2018/19
Subject	29202 - Biostatistics
Faculty / School	229 - Facultad de Ciencias de la Salud y del Deporte
Degree	441 - Degree in Human Nutrition and Dietetics
ECTS	6.0
Year	1
Semester	First semester
Subject Type	Basic Education
Module	

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives.

A wide range of teaching methodologies is used, such as lectures, seminars, computer-lab sessions, group work (problem-solving activities through assignments), small group and individual tutorial meetings, virtual tutorial meetings (email) and use of the virtual teaching platform (MOODLE).

Students are expected to attend and participate actively in the class throughout the semester.

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Classroom materials will be available via Moodle academic platform:

https://moodle2.unizar.es/add/

The former includes a repository of lecture presentations used in class, the course syllabus, as well as other learning resources.

Further information regarding the course will be provided on the first day of class.

4.2.Learning tasks

The academic load of the course is 6 ECTS which represent 150 hours of student work as follows:

- Lectures (1.44 ECTS)

- Calculator assisted problem sessions (0.56 ECTS)

- Computer-assisted problem sessions (0.40 ECTS)

- Autonomous work (3.40 ECTS)

- Assessment tasks (0.20 ECTS)

4.3.Syllabus

Lectures/seminars contents

- Introduction to Biostatistics. Scientific method.
- Univariate descriptive biostatistics. Frequency distribution. Tables and graphs. Measures of central tendency, spread, shape and position.
- Bivariate descriptive biostatistics. Two-way tables. Correlation and Regression.
- Probability theory. Bayes Theorem. Random variable and Probability distribution models.
- Introduction to inferential statistics. Sampling. Estimation by confidence interval. Sample size.
- Inferential statistics: Introduction to hypothesis testing, error types, significance level, power of the test, p values. Paired and independent samples.
- Hypothesis testing based on means, variances or proportions: Student' T, Z and Snedecor's F tests
- Non-parametric methods: chi-square test for independence. Mann-Whitney U test for ranked values.

Computer lab sessions contents: Use SPSS/Epidat and/or Excel and/or Epidat (free software) to:

- Create a new database. Manage data and variables.
- Create univariate and bivariate frequency tables and graphs
- Perform correlation and regression techniques
- Perform two sample comparisons of means and create confidence intervals for the population mean differences
- Compare proportions among two independent populations

4.4.Course planning and calendar

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For further details concerning the course timetable and classroom number as well as official exam dates (time and classroom number) please refer to the "Facultad de Ciencias de la Salud y del Deporte " website:

https://fccsyd.unizar.es/academico/horarios-y-calendarios

Exams and computer-assisted sessions important **dates** will be presented the first day of the course and uploaded in Moodle for future reference.

4.5.Bibliography and recommended resources

Recommended

- Almenara Barrios, José.. Manual de Bioestadistica : Teoria y Prácticas / José Almenara Barrios, Cesáreo García Ortega, Carolina Lagares Franco. . Cádiz : Quorum Editores, D.L. 2005.
- Bioestadística amigable / Miguel A. Martínez González (editor) ; Almudena Sánchez-Villegas, Francisco Javier Faulín Fajardo (co-editores) . 2ª ed. Madrid : Díaz de Santos, D.L.2006
- Martín González, Germán. Prácticas de estadística básica con SPSS / Germán Martín González. . Valencia : Universidad Católica San Vicente Mártir, 2008.
- Marston, Louise. Introductory statistics for health and nursing using SPSS / Louise Marston . Los Angeles : SAGE, 2010

Complementary

- Daniel, Wayne W.. Bioestadística : base para el análisis de las ciencias de la salud / Wayne W. Daniel . 4ª ed. en español, 2ª reimp. México : Limusa Wiley, cop. 2002
- Pagano, Marcello. Fundamentos de bioestadística / Marcello Pagano, Kimberlee Gauvreau. 2a ed. México D.F., etc. : Thomson Learning, cop.2001.
- Campbell, Michael J., PhD. Statistics at square one / M.J. Campbell and T.D.V. Swinscow. 11th ed. Chichester, West Sussex ;Hoboken, NJ : John Wiley & Sons, 2009.
- Pérez López, César. Estadística aplicada a través de Excel / César Pérez López . reimp. Madrid [etc.] : Prentice Hall, 2008