25404 - Statistics applied to health sciences

Información del Plan Docente

Academic Year	2017/18
Faculty / School	127 - Facultad de Ciencias de la Salud 275 - Escuela Universitaria de Enfermería de Huesca 375 - Escuela Universitaria de Enfermería de Teruel
Degree	559 - Degree in Nursing 280 - Degree in Nursing 561 - Degree in Nursing 273 - Degree in Nursing 281 - Degree in Nursing 560 - Degree in Nursing
ECTS	6.0
Year	---
Semester	Indeterminate
Subject Type	Basic Education
Module	---

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

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

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

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This is a basic course in statistics with particular focus on the health sciences. The course will teach basic statistical methods and procedures. In the computer lab sessions a statistical software package will be used to execute these procedures.

5.2.Learning tasks

Lectures

Computer lab sessions

Assessments assigned in the computer lab sessions

Writing a statistical report

5.3.Syllabus

Introduction

1.1 The scientific method

1.2 Steps in the research process

1.3 Population and sample

1.4 Types of statistical data

Univariate descriptive statistics

2.1 Describing data using tables and graphs

2.2 Distribution of a variable: central tendency

2.3 Distribution of a variable: dispersion and shape

2.4 Incidence and prevalence

2.5 Univariate descriptive statistics using a statistical package

Bivariate descriptive statistics

3.1 Contingency tables

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3.2 Marginal and conditional distributions

3.3 Introduction to Chi square tests

3.4 Scatter plots

3.5 Covariance and linear correlation coefficient

3.6 Introduction to linear regression

3.7 Bivariate descriptive statistics using a statistical package

Probability

4.1 Basic concepts in probability

4.2 Conditional probability and independence

4.3 Law of total probability. Bayes' theorem

4.4 Diagnostic tests: sensitivity and specificity

Random variables

5.1 Random variables and their characteristics

5.2 Discrete random variables. The Bernoulli, binomial and Poisson distributions

5.3 Continuous random variables. The uniform, exponential and Normal distributions

5.4 Probabilities and quantiles using a statistical package

Statistical inference

6.1 Introduction to sampling

6.2 Point estimation

6.3 Confidence interval

6.4 Statistical hypothesis testing

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5.4.Course planning and calendar

Course duration: 15 weeks

Lectures: 2h per week

Computer lab sessions: 2h per week

Midterm exam 1: Mars

Midterm exam 2: May

Academic calendar, including final exams schedules, can be found in the Faculty of Health Sciences webpage .

5.5.Bibliography and recommended resources

- Milton, J. Susan: Estadística para biología y ciencias de la salud. Métodos estadísticos con Statgraphics y SPSS, Agustín Turrero y Pilar Zuluaga 3ª ed. amp. Madrid, McGraw-Hill Interamericana, 2007
- Ríus Díaz, F., Barón López, F. J.: Bioestadística. Madrid, Thomson, 2008
- Visauta Vinacua, Bienvenido: Análisis estadístico con SPSS 14: Estadística básica. 3ª ed. Madrid, McGraw-Hill, 2007
- Canavos, G. C.: Probabilidad y estadística: aplicaciones y métodos. Madrid, McGraw-Hill, 2003
- Cobo Valeri, Erik: Bioestadística para no estadísticos: principios para interpretar un estudio científico. Barcelona, Elsevier Masson, 2007
- González Manteiga, M. T., Pérez de Vargas Luque, A.: Estadística aplicada : una visión instrumental : teoría y mas de 500 problemas resueltos o propuestos con solución. Madrid, Díaz de Santos, 2009
- Martín Andrés, Antonio, Luna Del Castillo, Juan de Dios: Bioestadística para las ciencias de la salud. 5ª ed. Madrid, Norma, 2004
- Peña Sánchez de Rivera, Daniel: Fundamentos de estadística. Madrid, Alianza, 2008