25404 - Statistics applied to health sciences

Información del Plan Docente

Academic Year	2018/19
Subject	25404 - Statistics applied to health sciences
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 561 - Degree in Nursing 560 - Degree in Nursing
ECTS	6.0
Year	1
Semester	Indeterminate
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

This is a basic course in applied 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.

The methodology followed in this course is oriented towards the achievement of the learning objectives. It favors the acquisition of knowledge related to biostatistics and health services. A wide range of teaching and learning tasks are

implemented, such as lectures, computer lab sessions, assignments, and autonomous work.

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

Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course syllabus, as well as other course-specific learning materials.

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

4.2.Learning tasks

This is a 6 ECTS course, that entails 150 hours of student work, organized as follows:

* Lectures (30 hours). Whole group sessions. The professor will explain the theoretical contents, which are available in advance on the virtual platform Moodle.

* Computer lab sessions (30 hours). Sessions where students work with case studies and problem-solving tasks using a statistical package. A summary of each session is available in advance on the virtual platform Moodle.

* Assignments (30 hours). In small groups, students will prepare an essay (which includes a statistical analysis). The students will submit a written copy at the end of the course.

* Autonomous work (60 hours). Time devoted to study the course contents and prepare the sessions and assignments.

4.3.Syllabus

The course will address the following topics:

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: measures of location

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

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

6.5 Inference using a statistical package

4.4.Course planning and calendar

Schedule of basic activities during the course:

- Course duration: 15 weeks
- Lectures: 2h per week
- Computer lab sessions: 2h per week
- Midterm exam 1: Mars
- Midterm exam 2: May

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class. Additional information about the academic calendar, final exams schedules, etc. is avaliable at the [Faculty of Health Sciences website](#).

4.5.Bibliography and recommended resources