27211 - Statistics and IT

Información del Plan Docente

Academic Year	2017/18
Faculty / School	100 - Facultad de Ciencias
Degree	452 - Degree in Chemistry
ECTS	6.0
Year	2
Semester	First semester
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

5.2.Learning tasks

5.3.Syllabus

Chapter 1: Basic notions

- Introduction to Computer Science. Computer Science applications

- Hardware and software. Operating systems. Networks. Programming languages

Chapter 2: Software tools

- Spreadsheets. Data management. Goal search

- Modular and structured programming. Data structures and control structures. Procedures and functions

Chapter 3: Descriptive statistics and basic concepts in probability

- Introduction and objectives of Statistics. Applications on Chemistry

- Different types of data

- Univariate and bivariate descriptive statistics

- Basic concepts in probability and random variables

Chapter 4: Statistical inference

- Introduction to statistical inference

- Point estimation of parameters

- Confidence intervals

- Tests of hypothesis

- Nonparametric inference

- Lineal regression models

5.4.Course planning and calendar

The course includes 25 lecture classes and 35 computer lab sessions in small groups.

Lecture classes and computer lab sessions are held during the first term. Timetable is available at http://ciencias.unizar.es/web/horarios.do

End of Activity 1 and 2: mid-term test

End of Activity 3: mid-term test

Schedule of final exams is available at http://ciencias.unizar.es/web/horarios.do

5.5.Bibliography and recommended resources

BB	Bourg, David M.. Excel : aplicaciones científicas y de ingeniería / David M. Bourg Madrid : Anaya, cop. 2007
BB	Miller, James N.. Estadística y Quimiometría para química analítica / James N. Miller, Jane C. Miller ; traducción, Carlos Maté Jiménez, Roberto Izquierdo Hornillos . - 1a ed. en español Madrid : Prentice Hall, 2002
BB	Peña Sánchez de Rivera, Daniel. Fundamentos de estadística / Daniel Peña . - 1ª ed., 1ª reimp. Madrid : Alianza, 2005
BB	Peña Sánchez de Rivera, Daniel. Regresión y diseño de experimentos / Daniel Peña Madrid : Alianza Editorial, 2002
BB	Prieto Espinosa, Alberto. Introducción a la informática / Alberto Prieto Espinosa, Antonio Lloris Ruiz, Juan Carlos Torres Cantero . - 4ª ed. Madrid [etc.] : MacGraw-Hill, D.L. 2006

Online resources:

[http://knuth.uca.es/]