

27621 - Data Analysis and Multivariate Techniques

Syllabus Information

Academic Year: 2020/21

Subject: 27621 - Data Analysis and Multivariate Techniques

Faculty / School: 109 - Facultad de Economía y Empresa

Degree: 450 - Degree in Marketing and Market Research

ECTS: 6.0

Year: 3

Semester: First semester

Subject Type: Compulsory

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. It is based on different teaching methods that favor the acquisition of the competences. A wide range of teaching and learning tasks are implemented, such as expository techniques, which they will be useful for developing the fundamental concepts of the subject. However, and since the subject will be entirely taught in computer rooms, computer tools will be used, alternating theoretical explanations with their application to database analysis, which will facilitate practical learning of the techniques studied. Students are expected to participate actively in the class throughout the semester and the professor will act as a tutor to help them solve the questions from each topic.

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, including a discussion forum. Further information regarding the course will be provided on the first day of class.

The teaching methodology is planned for face-to-face classes. However, if necessary for health reasons, teaching could be delivered on line

4.2.Learning tasks

This is a 6 ECTS course organized as follows:

- Theoretical-practical classes will be used in order to develop the concepts and developments of each of the topics. In them expository techniques will be used, but motivating participation and discussion in class. The teacher will rely on the computer to illustrate the practical use of the techniques explained by its application to solving real cases using the databases of the subject. In addition, the open software R program will be used to implement the explained techniques.
- Small group tutoring will be used in some optional sessions throughout the course to guide students in the performance of their group works.
- Individual and online scheduled tutoring will be able to be used by students to ask questions about the subject. In the case of students whose tutoring coincides with school hours of other subjects, they can send an email to make an appointment.

The assessment will be prepared to be carried out as face-to-face examination, but if health circumstances do not allow it, they will be carried out by doing it entirely online or in a blended way. In the case of online exams, it is important to highlight that, the student may be recorded, and he or she can exercise his or her rights by the procedure indicated in.

https://protecciondatos.unizar.es/sites/protecciondatos.unizar.es/files/users/lopd/gdocencia_reducida.pdf

The necessary software will be used to check the possibility of plagiarism. The detection of plagiarism or copying in an activity will imply that the activity or exam will be marked 0/10.

4.3.Syllabus

The course will address the following topics:

Section 1: Introduction to R and R Commander

Topic 1: Introduction to R

Topic 2: Introduction to R Commander

Section 2: Coding of different items of a survey

Topic 3: Design and coding of a survey

Topic 4: Preparation of a database by means of R Commander

Section 3: Initial analysis of a multivariate data set

Topic 5: One-dimensional exploratory analysis

Topic 6: Two-dimensional exploratory analysis

Section 4: Data reduction techniques

Topic 7: Principal Component Analysis

Topic 8: Factor Analysis

Section 5: Classification techniques

Topic 9: Cluster Analysis

Topic 10: Discriminant Analysis

4.4.Course planning and calendar

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.

4.5.Bibliography and recommended resources