Universidad Zaragoza

1542

Year : 2018/19

61343 - Multivariate Analysis Techniques

Syllabus Information

Academic Year:	2018/19
Subject:	61343 - Multivariate Analysis Techniques
Faculty / School:	109 -
Degree:	525 - Master's in Economics
ECTS:	3.0
Year:	1
Semester:	Second semester
Subject Type:	Optional
Module:	---

General information

Aims of the course

The approach of the subject is markedly instrumental since its objective is to provide students with a set of statistical tools widely used in the realization of a multidimensional exploratory analysis. To this end, the course begins with a theme dedicated to univariate exploratory analysis aimed, on the one hand, present the technics of one-dimensional statistical analysis commonly used in carrying out an initial analysis of data and, on the other, familiarizing the student with the statistical tool to be used throughout the course. Later two themes dedicated to the process of data reduction will be studied: the principal component analysis and factor analysis whose purpose is to express the information in a set of multivariate data in a small number of variables so that information loss is minimal and adequately reflects the relationship between the variables analyzed, all of which make such information more understandable. Finally, the problem of classification of objects will be studied from an exploratory character in which various techniques unsupervised classification included in cluster analysis will be presented.

Context and importance of this course in the degree

To pass the course, the student will be competent to use statistical tools to extract relevant information to develop and defend projects applied of economic character.

Recommendations to take this course

To have completed a course of introduction to both descriptive and inferential statistics and a course of Introduction to Econometrics

Learning goals

Competences

Learning goals

Importance of learning goals

Statistical techniques studied in the course will equip students with a set of powerful tools to make an initial exploratory analysis of the information contained in economic databases. In this way the student will learn to provide scientific rigor to solving economic problems by analyzing empirical data, which is an important step in implementing the scientific approach to problem solving.

Assessment (1st and 2nd call)

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

The student must demonstrate that it has achieved the intended learning outcomes by performing two tests of empirical character in which he will apply some of the techniques learned in the course. Both tests will aim to explain a set of real data using the techniques and methods developed in class and get the relevant conclusions. Both tests have the same weight in the final mark, i.e., 50%.

Methodology, learning tasks, syllabus and resources

Methodological overview

The learning process is based on the combination of exposure, by the teacher, of the underlying theoretical basis to each of the techniques explained, with application to case studies conducted in the classroom using the SPSS 22.0 statistical package and R program. This will be done in a participatory environment in which both teacher and students discuss among themselves the interpretation of the results, which will increase the degree of applicability of the explained techniques.

Learning tasks

Theoretical and practical sessions (50%-50%) 30 100%

Work preparation and independent study 60 --------

Syllabus

Theme 0A: Panoramic view of multivariate analysis **(2 hours)**

Theme 0B: Introduction to SPSS **(2 hours)**

Theme 0C: Introduction to R **(4 hours)**

Theme 1: Initial Data Analysis **(8 hours)**

Theme 2: Factor Anaysis (Principal Component Analysis) **(8 hours)**

Theme 3: Cluster Analysis **(6 hours)**

The course will be taught in sessions of two hours in the computer room.

Course planning and calendar

Bibliography and recommended resources

The updated bibliography is incorporated through the Library Center and can be accessed by the web