Universidad Zaragoza

Academic Year/course: 2023/24

27033 - Regression Methods

Syllabus Information

Academic year: 2023/24
Subject: 27033 - Regression Methods
Faculty / School: 100 - Facultad de Ciencias
Degree: 453 - Degree in Mathematics
ECTS: 6.0
Year: 4
Semester: First semester
Subject type: Optional
Module:

1. General information

This is an optional subject within the module of Probability and Statistics; it complements the training of the compulsory third-year subject Mathematical Statistics and introduces the process of fitting a statistical model.

The approaches and objectives of this module are aligned with the Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda; the learning activities could contribute to some extent to the achievement of the goals 4 (quality education), 5 (gender equality), 8 (decent work and economic growth), and 10 (reducing inequality).

2. Learning results

- Know the main elements of a linear regression model and know how to deduce its properties.
- To be able to construct a linear regression model and use it as a predictive model.
- Know the theoretical bases of the Analysis of Variance (ANOVA) and its application to linear models.

3. Syllabus

1. Simple linear regression model: assumptions, estimation of parameters, inference and validation of regression models.
2. Multiple linear regression model: estimation, validation and inference. Analysis of variance and covariance. Strategies for solving assumption departures. Introduction to model selection.
3. Extending the linear model: an introduction to generalized linear models.

4. Academic activities

Master classes: 30 hours.
Problem solving: 18 hours.
Computer classes: 12 hours.
Study: 84 hours.
Assessment tests: 6 hours.

5. Assessment system

The course will be passed by obtaining at least 5 points from the following intermediate tests:

- Written test on simple linear regression (1.5 points out of 10).
- Computer test on the simple linear regression model (1.5 points out of 10).
- A written report on a multiple linear regression project and its oral presentation (3 out of 10 points).
- Examination of multiple regression problems (4 out of 10 points).

Alternatively, and in accordance with the current regulations, the course can be passed by means of a global test of theoretical-practical and computer questions with a weight of 70%-30% respectively in the official calls.