Econometrics I: Time Series

Academic Year: (2019 / 2020)   **Review date: 10-05-2018**

Department assigned to the subject: Economics Department

Coordinating teacher: GONZALO MUÑOZ, JESUS

Type: Compulsory ECTS Credits : 3.0

Year : 1 Semester : 1

OBJECTIVES

- Understanding the main characteristics of time series: trend, seasonality, stationary temporal dependence and innovations.
- Models that can be formulated for economic and historical time series: a) deterministic univariate and ARIMA; b) dynamic single equation with exogenous explanatory variables; c) multi-equation (VAR) on stationary transformations of the series; d) single and multi-equation models on series with cointegrating relationships.
- Methodology for the construction of previous models.
- Learn the application of the above on real economic and historical series, both Spanish and European, using specific software.

DESCRIPTION OF CONTENTS: PROGRAMME

- Description of the empirical characteristics of time series.
- Transformations to stationarity
- The autocorrelation function
- Multiplicative seasonal ARIMA models: properties
- Estimation, diagnosis and forecasting
- Multivariate time series models
- Multivariate models with exogenous variables: single equation models
- Cointegration

LEARNING ACTIVITIES AND METHODOLOGY

Acquisition of theoretical knowledge through:
- Lectures, where the fundamental theoretical and practical concepts that students must acquire are developed. For this, students will have in advance a collection of notes and exercises to prepare the classes. Likewise, reference literature, complementary and additional to the areas covered in class, will be made available to students to deepen those subjects in which they are most interested.
- Resolution of exercises and case studies by the teacher, encouraging the active participation of students in solving them (both individually and in teams). These exercises will be solved during the lectures.
Acquisition of abilities and skills through:
- Throughout the course, students will attend computer classes and will be introduced to computer programming tools applied to solve problems directly related to the contents of the course.
- Resolution by the student of the exercises proposed by the teacher to be delivered throughout the year, which will serve to assess their knowledge and acquire the necessary skills.

ASSESSMENT SYSTEM

Final exam (25%) + Participation in class / Exercises (25%) + Mini Empirical Project (50%). The empirical project to evaluate the second part will aim to replicate a particular research paper and perform a comparative analysis with the updated data provided. It consists of a maximum of 5 sheets where the student must show capacity for analysis and synthesis, critical thinking and good management of quantitative tools.