

Academic Year: ( 2023 / 2024 )

Review date: 24-04-2023

Department assigned to the subject: Statistics Department

Coordinating teacher: LOPES MOREIRA DA VEIGA, MARIA HELENA

Type: Compulsory ECTS Credits : 5.0

Year : 1 Semester : 2

## REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Statistics, Quantitative Methods I

## OBJECTIVES

Models with discrete dependent variables and applications of panel data methods in all fields of economics have become increasingly important. This course starts with a brief review of concepts previously carried out in other courses of the program and focuses afterwards mainly on the methodological and empirical issues concerning the analysis of cross section and panel data in the specific context of economic models. Selected topics in time series analysis, especially topics of importance for the panel data analysis of dynamic models, will also be discussed. On satisfactory completion of this course, students will be provided with a number of sophisticated econometric tools which are of use in advanced empirical research or professional work.

## DESCRIPTION OF CONTENTS: PROGRAMME

- Chapter1. Endogeneity of Regressors
  - 1.1 Stochastic regressors and the properties of OLS estimators
  - 1.2 Measurement errors in the variables
  - 1.3 Simultaneous equation bias
  - 1.4 Instrumental variables
  - 1.5 Testing for endogeneity
- Chapter 2. Models with Discrete Dependent Variables
  - 2.1 Models for binary choice
  - 2.2 Estimation and inference in binary choice models
  - 2.3 Multinomial models
  - 2.4 A Poisson model for count data
- Chapter 3. Limited Dependent Variable Models
  - 3.1 The truncated regression model
  - 3.2 The censored regression model
- Chapter 4. Panel Data
  - 4.1 Basic panel data models
  - 4.2 Estimation and testing methods for random and fixed effect models
  - 4.3 Estimating Standard Errors in Finance Panel Data Sets

## LEARNING ACTIVITIES AND METHODOLOGY

The course is organized in theoretical classes whose materials are slides and problem sets for consolidation of concepts. In addition there are several laboratory sessions where students will use STATA.

## ASSESSMENT SYSTEM

It consists of a final exam (50%), presentation of a paper (compulsory, 10%) and a project (40%). The project consists of reproducing some empirical results of a published paper or a student idea structured in a research paper.

<b>% end-of-term-examination:</b>	50
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	50

#### BASIC BIBLIOGRAPHY

- Greene, W.H. Econometrics Analysis., Prentice-Hall. (Library code: D 330.43 GRE).
- Creel, M. Econometrics., Available at <http://pareto.uab.es/mcreel/Econometrics/econometrics.pdf>.
- Hayashi, F. Econometrics., Princeton University Press. (Library code: D 330.43 HAY)..
- Wooldridge, J.M. Introductory Econometrics: A Modern Approach., South Western College Publishing (Library code: D 330.43 WOO)..