Statistics II

Academic Year: (2021 / 2022) **Review date: 11-05-2021**

Department assigned to the subject:

Coordinating teacher: LOPES MOREIRA DA VEIGA, MARIA HELENA

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 2

OBJECTIVES

Models with discrete dependent variables and applications of panel data methods in all fields of social sciences have become increasingly important. This course focuses mainly on the methodological and empirical issues concerning the analysis of cross section and panel data in the specific context of socio-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

1. Multiple regression with stochastic regressors
1.1 Revision of basic concepts
1.2 Distributions of the OLS estimators
1.3 Inference
1.4 Confidence Intervals
2. Models with categorical dependent variables.
2.1 The linear probability model.
2.2 The probit, logit models and interpretation.
2.3 Estimation and inference in models with categorical dependent variables.
3. Other qualitative dependent variable models.
3.1 Multinomial models.
3.2 Estimation and inference.
4. Models with count data.
4.1 Estimation and inference.
5. Models with Panel Data: static models and control for unobserved heterogeneity.
5.1 Fixed effects models.
5.2 Random effects models .
5.2 Tests for model selection.

LEARNING ACTIVITIES AND METHODOLOGY

Training activities

Lectures
Practical classes
Tutorials
Individual student work

Teaching methodology

Lectures with the support of audiovisual media, in which the main concepts of matter are developed and the literature is provided to supplement student learning.

Reading recommended by the professor.

Solving problems posed by the professor individually or in groups.

Presentation and discussion of the project in class under professor moderation.

ASSESSMENT SYSTEM

It consists of a final exam (60%) 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.

% end-of-term-examination:	60
% of continuous assessment (assigments, laboratory, practicals…):	40

BASIC BIBLIOGRAPHY

- Greene, W.H. Econometrics Analysis., Prentice-Hall. (Library code: D 330.43 GRE).
- J. Scott Long Regression models for categorical and limited dependent variables, SAGE Publications.
- Jeffrey M. Wooldridge Econometric Analysis of Cross Section and Panel Data,, MIT Press.

ADDITIONAL BIBLIOGRAPHY

- Kosuke Imai Quantitative Social Science: An Introduction, Princeton University Press, 2018