Introduction to Econometrics

Academic Year: (2020 / 2021) **Review date: 08-02-2021**

Department assigned to the subject: Economics Department

Coordinating teacher: DELGADO GONZALEZ, MIGUEL ANGEL

Type: Compulsory ECTS Credits : 6.0

Year : 2 Semester : 2

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Mathematics for Economics I
Mathematics for Economics II
Statistics I
Statistics II
Principles of Economics
Microeconomics

OBJECTIVES

This course offers an introduction to data analysis in Social Science with the assistance of the multiple regression model. The emphasis is on the interpretation of the model and the application of statistical inference techniques to solve relevant practical problems. The course discusses in detail how to make inferences under non-standard situations, relevant in Social Sciences, due to the nature of the variables in the model (qualitative, transformed to allow nonlinear relations or non-observable,) or to the nature of data. The rigorous formal justification of the applied statistical inference techniques is out of the scope of this course. The background in Probability, Statistics, Algebra and Calculus offered in Mathematics I & II and Statistics I & II is more than enough for this course.

A very important aspect of the course consists of using Econometrics software packages. The most used in class is GRETL, but we also use E-Views. It is essential that the student has a personal computer with at least GRETL installed. The midterms exams, and possibly the final, require using GRETL. Students must attend all classes, both magistral and reduced, with their personal computers.

At the end of the course, the student will acquire a good working knowledge on the interpretation of the linear regression model, discriminating between alternative specifications by means of statistical inference, and using GRETL for estimation and hypothesis testing.

DESCRIPTION OF CONTENTS: PROGRAMME

This course offers an introduction to data analysis in Social Science with the assistance of the multiple regression model. The emphasis is on the interpretation of the model and the application of statistical inference techniques with the objective of solving relevant practical problems. The course discusses in detail how to make inferences under non-standard situations, relevant in Social Sciences, due to the nature of the variables in the model (qualitative, transformed to allow nonlinear relations or non-observable) or to the nature of data.

The course follow Chapters 1 to 12 of Stock & Watson (2012). Syllabus:

1. The nature of econometrics and economic data (SW. Ch. 1, 2 & 3)
2. The simple regression model (SW. Ch. 4,5).
3. Multiple regression analysis: estimation (SW. Ch. 6)
4. Multiple regression analysis: inference (SW. Ch. 7)
5. Nonlinear regression using linerar multiple regression (SW. Ch. 8).
6. Discrete choice (SW. Cp. 11).
7. Instrumental variables estimation and two stages least squares (SW. Cp. 12).

LEARNING ACTIVITIES AND METHODOLOGY

The different concepts are discussed in the context of analyzing relevant cases of study in Social Sciences using real data.

The text of the course is Stock & Watson (2012).

ASSESSMENT SYSTEM

Continuous Evaluation:

80%: 2 midterms, which require using GRETL in the students' personal computers.

20%: An essay using GRETL and real data.

% end-of-term-examination:	50
% of continuous assessment (assigments, laboratory, practicals…):	50

BASIC BIBLIOGRAPHY

- Goldberger, A.S. Introductory Econometrics, Harvard University Press, 1998
- Greene, W.H. Econometric analysis , Prentice Hall, 2008
- Gujarati, D.N. Basic Econometrics, McGraw-Hill, 2009
- Jonhston, J. Econometric Methods, The McGraw-Hill Companies, 1997
- Stock, J.H. & M.W. Watson Introduction to Econometrics, Addison Wesley, 2012
- Wooldridge, J.M. Introductory Econometrics. A Modern Approach, South-Western College Publishing, 2009

ADDITIONAL BIBLIOGRAPHY

- Hayashi, F. Econometrics, Princeton University Press, 2000
- Wooldridge, J.M. Econometric analysis of cross section and panel data , The MIT Press, 2009