Teaching Guide 2018/2019

Econometrics

Bachelor in Business Administration

Face-to-face tuition

Contents

Brief Description

This course is of an essential instrumental nature and attempts to provide the basic tools to carry out a detailed quantitative analysis of the relations that arise between phenomena and events of economic nature, to be able to make decisions within business context.

In addition, the student is provided with the basic skills for data searches of economic nature, handling of varied sources and use of specific software with which to apply the aforementioned analytical tools to reality.

Previous Requisites

In order to maximize the learning results of this subject, the student should have the previous competences of Business Mathematics I and II, of the first of the Degree in Business Administration, about linear algebra and calculus in a variable, as well as those acquired in Fundamentals of Statistics and Statistics applied to Business and, from the second course of Business Administration – about descriptive statistics, models of random variables and the linear regression model.

Objectives

1. Make the student familiar with basic knowledge of econometrics modelling.
2. Provide the student with suitable methodological tools to able to perform an econometric study, from the basic approach, data gathering and treatment until the results interpretation.
3. Get the student to understand and apply Econometrics knowledge to draw relevant conclusions about a particular real economic problem.
4. Provide the student with the necessary knowledge to have a good command of software suitable for this field.

Competences and learning results

Cross-curricular subjects

(T1) Ability of analysis and synthesis

(**T2**) Organization and planning ability

(**T6)** Ability to manage information

(T7) Adaptation to new situations

(T8) Decision making

(T9) Team work

(T14) Critical reasoning

(**T16**) Autonomous learning

(T22) Motivation for quality

(T24) Reflection capacity

(**UCAM1**) Ser capaz de expresarse correctamente en castellano en su ámbito disciplinar.
(**UCAM5**) Be able to use CIT basic tools as a user.
(**UCAM6**) **)** Acquire team work ability, to work with same or different field professionals.

Specific Competences

(E17) Know and apply basic economy concepts.

(E19) Have the ability to apply knowledge in the practice.

(E37) Identify and use suitable mathematical and statistical tools

(E38) Identify and use suitable software. Design information systems.

(E53) Derive from the data relevant information not recognizable by non-professionals.

(E57) Communicate fluently in its environment and work in a team.

Learning results

- Understand reason and synthetize contents in the field of Econometrics.
- Manage and organize the information acquired during the learning process in the field of Econometrics.
- Know and use in a suitable way the resources that new information and communication technologies provide in the Econometrics field.
- Organize and know how to use information from different contexts to apply Econometrics.
- Acquire the necessary abilities to solve problems within Econometrics scope.
- Decide in a comprehensive and critical way, among the different options to solve econometric problems.
- Acquire and implement collaboration strategies and abilities to promote teamwork in the field of Econometrics.
- Issue sentences and take a critical stance facing the different situations laid out in the field of Econometrics.
- Manage the learning process in this field in a proactive way
- Produce learning abilities that allow them to follow subsequent studies in the Econometrics area with a high level of autonomy.
- Value the importance of the suitable task performance in the resolution of problems and assumptions which require the use of econometrical techniques.
- Think in a critical and reasonable way about questions related to the field of Econometrics.
- Use orthographic and grammar rules and econometrics terminology in a suitable way, both in oral and written language.

- Know and use in a suitable way the econometric resources provided by the new information and communication technology.
- Collaborate with other professionals and recognize the different contributions, provided by other knowledge fields, to professional practice in the application of econometrics to the professional exercise.
- Have and understand cutting-edge knowledge of Econometrics, supported by books belonging to this field.
- Know and apply basic elements of econometrical analysis and interpret results.
- Perform applied econometrical studies, from the data gathering and treatment to the results interpreting.
- Understand and apply knowledge of Econometrics to the practice by elaborating and defending arguments well documented and constructed.
- Apply the most convenient criteria to solve econometrical problems related to socio-economic questions.
- Select mathematical and statistical methods and criteria necessary to carry out the econometrical analysis.
- Use simple regression models and explicative variables.
- Have a good command of software specialized in the different econometrics knowledge areas.
- Issue sentences about econometrical aspects after gathering and interpreting relevant information, impossible to recognize by non-professionals.
- Apply econometric methods to draw conclusions.
- Deem the validity of the possible solutions to a socio-economic problem by applying the suitable econometric tool.
- Communicate in a suitable and effective way information, ideas, problems and solutions within the econometric scenery.
- Solve econometrics problems in work teams.
- Use a logical structure and write with correct orthography.
- Use financial terminology in task performance.

Methodology

Methodology	Hours	Face-to-face work hours	Non-face-to-face work hours
Master class	36	60 horas (40 %)	
Practice workshops	8		
Assessment	4		
Tutorials	12		
Personal study	40,5		90 horas (60 %)
Tasks	27		
Practice clases	13,5		
Bibliographic search	9		
TOTAL	150	60	90

Contents

Theme 1: Econometrics modelling

1.1. What is Econometrics
1.2. Econometric models
1.3. Case studies.

Theme 2: Multiple linear regression model

2.1. Approach and model specification

2.2. Classical assumptions

2.3. OLS model estimation

2.4. Hypothesis test

2.5. Confidence intervals

2.6. Prediction

2.7. Case study.

Theme 3: Fictitious variable models

3.1. The additive effect

3.2. Multiplicative effect.

3.3. Mixed models.

3.4. Case study.

Theme 4: Heteroscedasticity

4.1. Definition and effects.

4.2. Detection. White test

4.3. Solutions to heteroscedasticity.

4.4. Case study.

Theme 5: Autocorrelation

5.1. Definition and effects.

5.2. Detection: Durbin-Watson test.

5.3. Solutions to autocorrelation.

5.4. Case study.

Theme 6: Multicollinearity

6.1. Definition and effects.

6.2. Detection.

6.3. Solutions to multicollinearity.

6.4. Case study

Theme 7: Structural change

7.1. Definition and effects of structural change.

7.2. Structural change detection.

7.3. Case study

Theme 8: Analysis of time series.

8.1. Time series and economic prediction

8.2. Stationary and non-stationary processes.

Theme 9: ARIMA Modelling

9.1. MA (q) – moving average model.

9.2. AR (q) – autoregressive model.

9.3. ARM(p.q.) and ARIMA(p.d.q.)

9.4. Box-Jenkins methodology.

9.5. Case study.

Connection with other subjects in the study plan

It is a basic tool to do quantitative analysis in subjects of Market Research, Marketing, Trade Management, Financial Management I and II, Strategic Management and Corporation Policy I and II, also in International Trade, Operations Management, as well as in the Degree final Task.

Assessment system

February/June call

Written exam: 80% of the total grade

The theoretical part of the subject will be assessed in two exams (50% and 30%). Both exams with have theoretical and practice questions, together with problems practiced to solve.

- Practice: 20% of total grade.

  This part will be graded through individual or group tasks and exercise correction, case studies, problems and the public defense of some tasks.

September Call:

Written exam: 80% of the total grade

The theoretical part of the subject will be assessed in two exams (50% and 30%). Both exams with have theoretical and practice questions, together with problems practiced to solve.

In this case the student will do the exam of the part failed in February/June call.

- Practice: 20% of total grade.

In this case the student will have to hand out all exercises, problems and /or tasks failed in February/June call.

February/June Call

The student will pass the subject in the February/June call when the arithmetic mean, according to the three grade percentages (two written exams and involvement) is equal or higher than 5, whenever none of the other two grades is lower than 4.

If the student has less than 5 points in any of the three grades (the two written exams and the involvement), he/she will have to retake it in September, keeping the grades equal or higher than 5.

September call

The student will pass the subject in September call when the arithmetic mean, according to the fixed percentages in three punctuations two written exams and involvement) is equal or higher than 5, whenever none of the other two grades is lower than 4.

In case of not passing, he/she will have to resit for the complete subject in later calls.

Grading System

The grading systems (RD 1.125/2003. de 5 de septiembre) will be:

0-4,9 Fail (SS)

5,0-6,9 Pass (AP)

7,0-8,9 Grade B (NT)

9,0-10 Distinction (SB)

The “Honors” mention can be awarded to those students with a degree of 9,0 or higher. This cannot be awarded to more than 5% of the students registered in a subject in each academic year, unless the number of students registered is less than 20, when there will be awarded only one mention.

Bibliography and reference sources

Basic bibliography

- Paul Newbold, William L. Carlson, Betty M. Thorne, (2010). Statistics for business and economics. 7th ed., Upper Saddle River, N.J. : Pearson, cop. 2010

Webs related

- http://www.ecb.europa.eu/stats/html/index.en.html
  Statistics of Central European Bank
- http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/
  Eurostat

Recommendations for future study

For a better understanding of the subject, we recommend do all the exercises and tasks proposed by the teacher and consult the basic bibliography recommended.

Instructional Material

It will be necessary to have a PC with all the necessary programs installed (text editor, spreadsheet, presentation tools, etc.) We also recommend students to use memory devices (USB, CDs or DVDs) to make easier the interchange of information in presentations such as Power Point, exercises, case

study, etc., during the face-to-face classes. We also recommend the use of calculator and access to the Internet.

Basic material is a dossier prepared and provided by the teacher to the students, together with exercises as support to the basic concepts.

Tutorials

Academic tutorial:

These tutorials have the aim of consolidating knowledge and abilities taught in the classes of the subject, at the same time will help to solve problems and doubts asked by the students. The hours for the tutorials will also be employed to the performance, follow up and assessment of the different tasks in order to contribute to the understanding of the subject methodology and systems of assessment.

Personal Tutorial:

The university also has a Special Team for tutorials with the students enrolled in the degree. The personal tutor accompanies the student during the complete university period. Criteria and aspects can be consulted in:

http://www.ucam.edu/servicios/tutorias/preguntas-frecuentes/que-es-tutoria