University of the Balearic Islands

Teaching guide

Subject identification

Subject	21205 - Econometrics
Credits	2.4 de presencials (60 hours) 3.6 de no presencials (90 hours) 6 de totals (150 hours).
Group	Group 60, 1S, GADE (Campus Extens)
Teaching period	1st semester
Teaching language	English

Professors

Lecturers	Horari d'atenció als alumnes					
	Starting time	**Finishing time**	**Day**	**Start date**	**Finish date**	**Office**
Helena Isabel Ferreira Marques helena.ferreira-marques@uib.es	11:30h	12:30h	Monday	22/09/2014	31/07/2015	DB255 (cita prèvia per e-mail)

Contextualisation

This subject starts out from the contents already studied in "Analysis of Economic Data". In order to be able to grasp the contents of "Econometrics" more easily, students are strongly advised to review the contents of "Analysis of Economic Data" as soon as the academic year starts. The main objective of "Econometrics" is the detailed study of some econometric techniques commonly used in applied research in the context of Economics and Business. The first part of the course covers the principles of statistical inference, the concepts of estimator and confidence interval, as well as hypothesis testing. The second part of the course introduces the study of the simple linear regression model and its generalization to multiple regression, considering the relevant methods of hypothesis testing. Finally, the third part of the course is centered on the issue of the specification of the regression model, in particular specification errors and sample issues, as well as the use of qualitative explanatory variables (known as "dummies"), and the failure of the basic hypotheses placed on the error term.

Requirements

A good knowledge of the contents of "Analysis of Economic Data" and "Mathematics" will facilitate the understanding of the contents of this subject. In addition, a good knowledge of English is essential.

Skills

The main objective of the subject is the understanding of some econometric techniques commonly used in applied research in the Economics and Business context. It will provide basic training in handling

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econometric techniques as tools of analysis of Economics and Business data, using the theoretical frameworks taught in various Economics and Business courses, and in interpreting and explaining the results obtained in the light of those theories, as well as in carrying out predictions. The methods and techniques explained in the "Econometrics" subject are transferable to most Economics and Business datasets that students may come across in their future professional careers.

Specific

* CE2.1.7 A partir de datos de interés económico-empresarial, ser capaz de aplicar las herramientas estadísticas y econométricas adecuadas para el análisis de la empresa y su entorno.
* CE2.3.7 Conocer las fuentes de datos estadísticos y económicos relevantes así como las herramientas de análisis adecuadas para preparar la toma de decisiones en empresas y organizaciones, especialmente en los niveles operativo y táctico.
* CE2.4 Defender las soluciones propuestas de una manera articulada a partir de los conocimientos teóricos y técnicos adquiridos.

Generic

* CG3 Capacidad para comunicarse en inglés.
* CG4 Capacidad para usar habitualmente una variada gama de instrumentos de tecnología de la información y las comunicaciones.
* CG5 (CB3) Tener la capacidad de reunir e interpretar datos relevantes para emitir juicios que incluyan una reflexión sobre temas relevantes de índole social, científica o ética.

Basic

* You may consult the basic competencies students will have to achieve by the end of the degree at the following address: http://www.uib.eu/study/grau/Basic-Competences-In-Bachelors-Degree-Studies/

Content

Theme content

Topic 1. Statistical inference: estimation
1. Basic concepts
2. Parameter estimation: point estimator and estimator properties
3. Parameter estimation: interval estimator (confidence interval)
4. Main estimators

Topic 2. Statistical inference: hypothesis testing
1. Hypothesis specification
2. Test statistic and decision criteria
3. Test quality: error types, power and p-value
4. Main parametric tests
5. Using Excel in inference

Topic 3. The simple linear regression model
1. Econometric modelling
2. Linear correlation and regression
3. Specification of the simple linear regression model
4. Statistical hypotheses on the classical regression model
5. Estimation by Ordinary Least Squares (OLS)

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      6. Model testing, validation and selection

      7. Prediction

      8. Introduction to GRETL and exercises

Topic 4. The multiple linear regression model

      1. Specification of the multiple linear regression model

      2. Estimation by Ordinary Least Squares (OLS)

      3. Interpretation of results and parameter testing (individual, joint and restrictions)

      4. Model testing, validation and selection

      5. Prediction

      6. Using GRETL and exercises

Topic 5. Qualitative explanatory variables (dummies)

      1. Specification and OLS estimation with one dummy and its category groups

      2. Specification and OLS estimation with two or more dummies and their category groups

      3. Interactions

      4. Dummies and seasonality

      5. Using GRETL and exercises

Topic 6. Specification errors

      1. Structural breaks

      2. Inclusion of irrelevant variables

      3. Omission of relevant variables

      4. Non-linearity

      5. Failure of the basic hypotheses on the error term

      6. Testing using GRETL

Topic 7. Sample issues

      1. Multicolinearity

      2. Outliers

      3. Using GRETL and exercises

Teaching methodology

In-class work activities

Modality	Name	Typ. Grp.	Description	Hours
Theory classes	Lectures	Large group (G)	Lectures allow a detailed exposition of the most important aspects of each topic, especially the new concepts. They also allow a special focus on the most difficult issues, where students need more learning support. Finally, they also facilitate the understanding of the context in which each topic is placed, including the relationships between the different topics.Lectures will take up an average of 40 hours per student.	40
Practical classes	Computer sessions	Medium group (M)	At the end of each topic there will be computer sessions to deepen the understanding of the theory and to alllow the student to apply the theoretical concepts to real world data. The data management package EXCEL and the free	13

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Modality	Name	Typ. Grp.	Description	Hours
			econometric package GRETL will be used to this end. In two selected computer sessions the student will be required to save and upload a set of computer tasks carried out in the class for assessment. Aditionally, in two other selected computer sessions the student will be required to answer a multiple choice test online.Computer sessions will take up an average of 10 hours per student.	
Assessment	Computer-based tasks	Medium group (M)	In two selected computer sessions the student will be required to save and upload a set of computer tasks carried out in the class for assessment. The first set of tasks for assessment will be on statistical inference using Excel and the second one will be on the regression model using Gretl. Each set of tasks is worth 10% of the final mark. The questions and the data will be provided at the start of the class and the answers must be uploaded before the end of the class.	3
Assessment	Final exam	Large group (G)	There will be a final exam in the examination periods defined by the University to assess the understanding of the whole course. The length of the final exam will be of 2.5 hours. The final exam is worth 50% of the final mark and to pass the course the student must obtain a minimum mark of 3.5 in the final exam.	2.5
Assessment	Online multiple choice tests	Medium group (M)	In two selected computer sessions the student will be required to answer a multiple choice test online. Each test will have 10 questions with a duration of 40 minutes and is worth 10% of the final mark.	1.5
Assessment	Participation in class	Large group (G)	The active participation in class (including answering questions and solving exercises) will be worth 10% of the final mark.	0

At the beginning of the semester a schedule of the subject will be made available to students through the UIBdigital platform. The schedule shall at least include the dates when the continuing assessment tests will be conducted and the hand-in dates for the assignments. In addition, the lecturer shall inform students as to whether the subject work plan will be carried out through the schedule or through another way included in the Campus Extens platform.

Distance education work activities

Modality	Name	Description	Hours
Individual self-study	Self-study	Students should study the lecture material before each lecture and also review the lecture content after each lecture in order to ensure that they have grasped the basics of the subject. They should also solve the exercises proposed to them. Similarly, to deepen the understanding of lecture contents and place them in context it is important to study the bibliography of the course.	90

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Specific risks and protective measures

The learning activities of this course do not entail specific health or safety risks for the students and therefore no special protective measures are needed.

Student learning assessment

ASSESSMENT PATH A: FULL-TIME STUDENTS ENROLLING ON THE COURSE FOR THE FIRST TIME

Assessment will be composed of a final exam and three different forms of in-term assessment:

1) The final exam is a written exam taking place in the normal assessment periods defined by the University. It is worth 50% of the final mark and a minimum mark of 3.5 must be obtained in the final exam to pass the course.

2) During term time there will be computer sessions covering various topics. In two of those sessions, a question sheet will be uploaded into Campus Extens together with a dataset. The assignment should be handed in by uploading it also into Campus Extens at the end of the class. Assignments will consist on the application of various econometric techniques to the datasets provided by the lecturers, using EXCEL and GRETL. Each computer-based assignment will be worth 10% of the final mark.

3) In two of the computer sessions an online multiple choice test will be uploaded to be answered in class. Each multiple choice test will be worth 10% of the final mark.

4) Participation in class by answering questions andsolving exercises on the blackboardwill be worth 10% of the final mark.

Each piece of assessment will be marked on a 0-10 scale. The final mark will be a weighted average of the marks obtained in the different components.

A student will pass the course with a minimum final mark of 5, but a minimum mark of 3.5 must be obtained in the final exam to pass the course.

Students who do not pass the course at first attempt will keep all their marks, except that of the final exam. Therefore the final exam is the only piece of assessment that can be repeated within the same academic year.

Students will be considered as absent from examination if the assessment activities handed in correspond to a percentage equal to or less than 35% of the final mark. The justifications accepted by UIB for not participating in assessment activities are the death of a first line direct relative of the student's (for example, father or mother), hospitalization of the student, or participation of the student in a court jury. If one of these situations is proven by a certified document, the student is given an extension of the deadline to hand in those assessment activities that could not be handed in because of that situation.

ASSESSMENT PATH B: OPTIONAL FOR PART-TIME STUDENTS AND STUDENTS THAT FAILED THE COURSE AT LEAST ONCE AFTER HAVING BEEN PRESENT AT A MINIMUM OF 50% OF IN-TERM ASSESSMENT

Assessment will be composed of a final exam only.

The final exam will be marked on a 0-10 scale.A student will pass the course with a minimum final mark of 5 in the final exam.

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Computer-based tasks

Modality	Assessment
Technique	Student internship dissertation **(non-retrievable)**
Description	In two selected computer sessions the student will be required to save and upload a set of computer tasks carried out in the class for assessment. The first set of tasks for assessment will be on statistical inference using Excel and the second one will be on the regression model using Gretl. Each set of tasks is worth 10% of the final mark. The questions and the data will be provided at the start of the class and the answers must be uploaded before the end of the class.
Assessment criteria	Set according to the competences described.

Final grade percentage: 20% for the training plan A

Final grade percentage: 0% for the training plan B

Final exam

Modality	Assessment
Technique	Extended-response, discursive examinations **(retrievable)**
Description	There will be a final exam in the examination periods defined by the University to assess the understanding of the whole course. The length of the final exam will be of 2.5 hours. The final exam is worth 50% of the final mark and to pass the course the student must obtain a minimum mark of 3.5 in the final exam.
Assessment criteria	Set according to the competences described.

Final grade percentage: 50% for the training plan A with minimum grade 3.5

Final grade percentage: 100% for the training plan B

Online multiple choice tests

Modality	Assessment
Technique	Objective tests **(non-retrievable)**
Description	In two selected computer sessions the student will be required to answer a multiple choice test online. Each test will have 10 questions with a duration of 40 minutes and is worth 10% of the final mark.
Assessment criteria	Set according to the competences described.

Final grade percentage: 20% for the training plan A

Final grade percentage: 0% for the training plan B

Participation in class

Modality	Assessment
Technique	Other methods **(non-retrievable)**
Description	The active participation in class (including answering questions and solving exercises) will be worth 10% of the final mark.
Assessment criteria	Set according to the competences described.

Final grade percentage: 10% for the training plan A

Final grade percentage: 0% for the training plan B

Resources, bibliography and additional documentation

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Basic bibliography

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HILL, R. C., GRIFFITHS, W.E. and LIM, G. C. (2012), "Principles of Econometrics", Wiley, 4th edition.

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Complementary bibliography

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