Universitat de les Illes Balears

Syllabus

Subject

Subject / Group	21205 - Econometrics / 60
Degree	Double Degree in Business Administration and Tourism - Second year
	Degree in Business Administration - Second year
	Double degree in Business Administration and Law (2013 syllabus) - Third year
Credits	6
Period	1st semester
Language of instruction	English

Professors

Lecturers	Office hours for students					
	Starting time	Finishing time	Day	Start date	End date	Office / Building
Victor Emilio Troster - *Responsible* victor.troster@uib.es	12:30	13:30	Wednesday	11/09/2019	19/12/2019	DB 219
Heiko Jürgen Rachinger - heiko.rachinger@uib.es	15:00	16:00	Wednesday	11/09/2019	30/06/2020	DB210

Context

This course 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, considering the relevant methods of hypothesis testing, and its generalization to multiple regression, incorporating qualitative explanatory variables (known as "dummies") into the linear regression model.

The language of instruction for this group is English, which implies that during the course students should learn specific economic/business/tourism-related vocabulary and develop their communication skills in English, therefore acquiring further specialized knowledge of the English language.

Requirements

A good knowledge of the contents of "Analysis of Economic Data" and "Mathematics" will facilitate the understanding of the contents of this subject, as well as a good knowledge of English.

Document automatically generated at 2350:01 of 27/10/2019

Syllabus

Recommended

A good knowledge of the contents of "Analysis of Economic Data" and "Mathematics" will facilitate the understanding of the contents of this subject, as well as a good knowledge of English.

Skills

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

Topic 1. Statistical inference: estimation

Topic 2. Statistical inference: hypothesis testing

Topic 3. The simple linear regression model

Topic 4. The multiple linear regression model

Topic 5. Qualitative explanatory variables (dummies)

Range of topics

Topic 1. Statistical inference: estimation
1. Main 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

Document automatically generated at 2350:01 of 27/10/2019

Syllabus

1. Hypothesis specification
2. Test statistic and decision criteria
3. Test quality: error types, power and p-value
4. Main parametric tests
5. Using GRETL 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)
6. Model testing, validation and selection
7. Prediction
8. Using 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

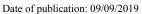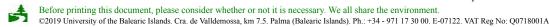Topic 5. Qualitative explanatory variables (dummies)
1. Specification and OLS estimation with one dummy and its category groups
2. Specification and OLS estimation with two or more dummies and their category groups
3. Interactions
4. Dummies and structural breaks
5. Dummies and seasonality
6. Using GRETL and exercises

Teaching methodology

In-class work activities (2.4 credits, 60 hours)

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 classes	Medium group (M)	Once topic 2 is finished, there will be computer classes to deepen the understanding of the theory and to alllow the students to apply the theoretical concepts to real data. The econometric package GRETL will be used to this end.	13

Date of publication: 09/09/2019

Document automatically generated at 2350:01 of 27/10/2019

Syllabus

Modality	Name	Typ. Grp.	Description	Hours
			Computer sessions will take up an average of 12 hours per student.	
Assessment	Partial exam	Medium group (M)	A partial exam will be held to evaluate the knowledge acquired in Block 2 of the course. The partial exam will also be a multiple-choice exam with some fulfill questions, in an approximate time of 2 hours.	2.5
Assessment	In-class tests	Medium group (M)	Throughout the course, students have to solve individually a test of multiple choice and fulfill questions about the Block 1. It consists of about 10-12 questions, in an approximate time of 1 hour and 15 minutes.	3
Assessment	Computer-based tasks	Medium group (M)	In one selected computer class during the semester the student will be required to carry out a set of computer tasks in GRETL for assessment. This set of tasks will be based on Bloc 2 (topics 3 to 5 - linear regression model and dummies) and is worth 20% 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. A minimum mark of 3 in the computer-based assessment is required for the student to pass the course.	1.5

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 Aula Digital platform.

Distance education tasks (3.6 credits, 90 hours)

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

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

There are two itineraries to pass the course. The **itinerary A** is based on continuous assessment, and it is the one to be followed by students who are not working part-time and who are enrolled for the first time in the

Document automatically generated at 2350:01 of 27/10/2019

Syllabus

course. The **itinerary B** consists of two exams: the first partial on Block 1 (50%) and the partial exam on Block 2 (50%). It is optional for both part-time-working students and for the repeaters of the course who have taken at least 50% of the continuous assessment in a past course.

The evaluation of the itinerary A consists of three evaluation tests. The three evaluation tests are recoverable. To pass the course in the Continuous Assessment (AC), it is necessary to obtain a weighted-average grade of 5 on the two blocks and, at least, a grade of 3 on each one of the 3 assessment tests. Therefore, the student passes the course in the AC and does not have to take the recovery exam.

Block 1. (40% of the final grade) If a grade equal to or greater than 5 is obtained in the first partial exam, the subject content of Block 1 is approved. If the grade is less than 3, this Block must be recovered in the recovery exam. If the grade is between 3 and 5, it can be compensated with that of the second Block.
Block 2. (60% of the final grade) It consists of two tests, a practical test in Gretl that ponders 20% and a partial exam that is worth 40% of the final grade. To pass the second Block, it is necessary to obtain a minimum grade of 3 on each one of the two evaluation tests of this block. If a student does not obtain a grade of 3 in any of the two tests, then he must take the recovery exam and recover the suspended part. If the student obtains a grade equal to or greater than 3 in one of the two tests and the weighted average of the Block is equal to or greater than 5, then the subject content of this Block is approved. If the weighted-average grade of the Block is between 3 and 5, it can be compensated with that of the first Block.

The recovery exam is a written exam that takes place during the period of extraordinary evaluation. It is a recovery exam for the students of the itinerary A and B.
The student will get a numerical grade between 0 and 10 for each one of the assessment activities. The overall score is calculated considering the different weights of the different forms of evaluation. The student who achieves a minimum final grade of 5 passes the course. A student will be considered not presented if he takes a number of exams corresponding to a percentage equal to or less than 35% of the final grade.

Frau en elements d'avaluació

In accordance with article 33 of Regulation of academic studies, "regardless of the disciplinary procedure that may be followed against the offending student, the demonstrably fraudulent performance of any of the evaluation elements included in the teaching guides of the subjects will lead, at the discretion of the teacher, a undervaluation in the qualification that may involve the qualification of "suspense 0" in the annual evaluation of the subject".

Partial exam

Modality	Assessment
Technique	Objective tests **(recoverable)**
Description	A partial exam will be held to evaluate the knowledge acquired in Block 2 of the course. The partial exam will also be a multiple-choice exam with some fulfill questions, in an approximate time of 2 hours.
Assessment criteria	Set according to the competences described.

Final grade percentage: 40% for pathway Awith a minimum grade of 3
Final grade percentage: 50% for pathway Bwith a minimum grade of 3

Syllabus

In-class tests

Modality	Assessment
Technique	Objective tests **(recoverable)**
Description	Throughout the course, students have to solve individually a test of multiple choice and fulfill questions about the Block 1. It consists of about 10-12 questions, in an approximate time of 1 hour and 15 minutes.
Assessment criteria	Set according to the competences described.

Final grade percentage: 40% for pathway Awith a minimum grade of 3
Final grade percentage: 50% for pathway Bwith a minimum grade of 3

Computer-based tasks

Modality	Assessment
Technique	Real or simulated task performance tests **(recoverable)**
Description	In one selected computer class during the semester the student will be required to carry out a set of computer tasks in GRETL for assessment. This set of tasks will be based on Bloc 2 (topics 3 to 5 - linear regression model and dummies) and is worth 20% 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. A minimum mark of 3 in the computer-based assessment is required for the student to pass the course.
Assessment criteria	Set according to the competences described.

Final grade percentage: 20% for pathway Awith a minimum grade of 3
Final grade percentage: 0% for pathway B

Resources, bibliography and additional documentation

The book by ANDERSON, SWEENEY and WILLIAMS (2001) is highly recommended to better understand the contents studied in class. In addition, the class notes are based on this book. The book of WOOLDRIDGE (2012) is recommended for the second Block of the course.

Basic bibliography

ANDERSON, D. R., SWEENEY, D. J., y WILLIAMS, T. A. (2001). "Statistics for Business and Economics". South-Western Pub, 11th edition.
WOOLDRIDGE, J. M. (2012). "Introductory Econometrics: A Modern Approach". Thomson, 5th edition.

Complementary bibliography

ASHENFELTER, O., LEVINE, P. B. and ZIMMERMAN, D. J. (2006). "Statistics and Econometrics: Methods and Applications". Wiley.
GREENE, W. H. (2007). "Econometric Analysis". Addison-Wesley/Prentice Hall, 6th edition.
GUJARATI, D. (2009). "Econometrics". McGraw-Hill, 5th edition.
HILL, R. C., GRIFFITHS, W.E. and LIM, G. C. (2012). "Principles of Econometrics". Wiley, 4th edition.
KENNEDY, P. (2003). "A Guide to Econometrics". MIT Press.
MADDALA, G. S. (1992). "Introduction to Econometrics". Prentice Hall, 2nd edition.
NEWBOLD P., CARLSON, W. and THORNE, B.(2009). "Statistics for Business and Economics". Addison-Wesley/Prentice Hall, 7th edition.

Date of publication: 09/09/2019

Document automatically generated at 2350:01 of 27/10/2019

Syllabus

STOCK, J.H. and WATSON, M.M. (2012). "Introduction to Econometrics". Pearson, 3rd edition.

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