



## Teaching Guide

| Teaching Guide      |                                                                                                                                                                                                                                                   |        |                                                |           |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------------------------------------------|-----------|
| Identifying Data    |                                                                                                                                                                                                                                                   |        |                                                | 2023/24   |
| Subject (*)         | Econometrics II                                                                                                                                                                                                                                   |        | Code                                           | 611G01027 |
| Study programme     | Grao en Economía                                                                                                                                                                                                                                  |        |                                                |           |
| Descriptors         |                                                                                                                                                                                                                                                   |        |                                                |           |
| Cycle               | Period                                                                                                                                                                                                                                            | Year   | Type                                           | Credits   |
| Graduate            | 2nd four-month period                                                                                                                                                                                                                             | Third  | Obligatory                                     | 6         |
| Language            | SpanishGalician                                                                                                                                                                                                                                   |        |                                                |           |
| Teaching method     | Face-to-face                                                                                                                                                                                                                                      |        |                                                |           |
| Prerequisites       |                                                                                                                                                                                                                                                   |        |                                                |           |
| Department          | Economía                                                                                                                                                                                                                                          |        |                                                |           |
| Coordinador         | Lado González, Eva Mª                                                                                                                                                                                                                             | E-mail | eva.lado@udc.es                                |           |
| Lecturers           | Garcia-Carro Peña, Beatriz<br>Lado González, Eva Mª                                                                                                                                                                                               | E-mail | beatriz.garcia-carro@udc.es<br>eva.lado@udc.es |           |
| Web                 |                                                                                                                                                                                                                                                   |        |                                                |           |
| General description | This subject is an extension of the contents of the Econometrics I course taught in the first four-month period. It analyzes several topics of great theoretical and applied interest for the specification and estimation of econometric models. |        |                                                |           |

## Study programme competences

| Code | Study programme competences                                                                                                                                                                                                                                                                                                       |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A1   | CE1- Contribuír á boa xestión da asignación de recursos tanto no ámbito privado como no público.                                                                                                                                                                                                                                  |
| A2   | CE2-Identificar e anticipar problemas económicos relevantes en relación coa asignación de recursos en xeral, tanto no ámbito privado como no público.                                                                                                                                                                             |
| A3   | CE3-Aportar racionalidade á análise e á descripción de calquera aspecto da realidade económica.                                                                                                                                                                                                                                   |
| A4   | CE4-Avaliar consecuencias e distintas alternativas de acción e seleccionar as mellores, dados os obxectivos.                                                                                                                                                                                                                      |
| A5   | CE5-Emitir informes de asesoramento sobre situación concretas da economía (internacional, nacional ou rexional) ou de sectores da mesma.                                                                                                                                                                                          |
| A6   | CE6-Redactar proxectos de xestión económica a nivel internacional, nacional ou rexional. Integrarse na xestión empresarial.                                                                                                                                                                                                       |
| A7   | CE7-Identificar as fontes de información económica relevante e o seu contido.                                                                                                                                                                                                                                                     |
| A8   | CE8-Entender as institucións económicas como resultado e aplicación de representacións teóricas ou formais acerca de cómo funciona a economía.                                                                                                                                                                                    |
| A9   | CE9-Derivar dos datos información relevante imposible de recoñecer por non profesionais.                                                                                                                                                                                                                                          |
| A10  | CE10-Usar habitualmente a tecnoloxía da información e as comunicación en todo o seu desempeño profesional.                                                                                                                                                                                                                        |
| A11  | CE11Leer e comunicarse no ámbito profesional en máis dun idioma, en especial en inglés.                                                                                                                                                                                                                                           |
| A12  | CE12-Aplicar á análise dos problemas criterios profesionais baseados no manexo de instrumentos técnicos.                                                                                                                                                                                                                          |
| A13  | CE13-Comunicarse con fluidez no seu contorno e traballar en equipo.                                                                                                                                                                                                                                                               |
| B1   | CB1 - Que os estudantes demostren posuír e comprender coñecementos nun área de estudo que parte da base da educación secundaria xeral, e que soe encontrar nun nivel que, aínda que se apoia en libros de texto avanzados, inclúe tamén algúns aspectos que implican coñecementos procedentes da vangarda do seu campo de estudo. |
| B2   | CB2 - Que os estudantes saiban aplicar os seus coñecementos ó seu traballo ou vocación dun xeito profesional e posúan as competencias que se demostran por medio da elaboración e defensa de argumentos e a resolución de problemas dentro da súa entorna de traballo.                                                            |
| B3   | CB3 - Que os estudantes teñan a capacidade de reunir e interpretar datos relevantes (normalmente dentro da súa área de estudo) para emitir xuízos que inclúan unha reflexión sobre temas relevantes de índole social, científica ou ética                                                                                         |
| B4   | CB4 - Que os estudantes poidan transmitir información, ideas, problemas e solucións a un público tanto especializado como non especializado                                                                                                                                                                                       |
| B5   | CB5 - Que os estudantes desenvolvesen aquelas habilidades de aprendizaxe necesarias para emprender estudos posteriores cun alto grao de autonomía                                                                                                                                                                                 |
| B6   | CG1- Que os estudantes formados se convertan en profesionais capaces de analizar, reflexionar e intervir sobre os diferentes elementos que constitúen un sistema económico                                                                                                                                                        |



|    |                                                                                                                                                                                                                                                                        |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B7 | CG2 - Que os estudantes coñezan o funcionamento e as consecuencias dos sistemas económicos, as distintas alternativas de asignación de recursos, acumulación de riqueza e distribución da renda e estean en condicións de contribuír ao seu bo funcionamento e mellora |
| B8 | CG3 -Que os estudantes sexan capaces de identificar e anticipar os problemas económicos relevantes, identificar alternativas de resolución, seleccionar as máis axeitadas e avaliar os resultados aos que conduce.                                                     |
| B9 | CG4 -Que os estudantes respecten os dereitos fundamentais e de igualdade de oportunidades, non discriminación e accesibilidade universal das persoas con minusvalidez.                                                                                                 |
| C1 | CT1-Expresarse correctamente, tanto de forma oral coma escrita, nas linguas oficiais da comunidade autónoma.                                                                                                                                                           |
| C2 | Dominar a expresión e a comprensión de forma oral e escrita dun idioma estranxeiro.                                                                                                                                                                                    |
| C3 | Utilizar as ferramentas básicas das tecnoloxías da información e as comunicacións (TIC) necesarias para o exercicio da súa profesión e para a aprendizaxe ao longo da súa vida.                                                                                        |
| C4 | CT2-Desenvolverse para o exercicio dunha cidadanía aberta, culta, crítica, comprometida, democrática e solidaria, capaz de analizar a realidade, diagnosticar problemas, formular e implantar solucións baseadas no coñecemento e orientadas ao ben común.             |
| C5 | CT3-Entender a importancia da cultura emprendedora e coñecer os medios ao alcance das persoas emprendedoras.                                                                                                                                                           |
| C6 | CT4-Valorar criticamente o coñecemento, a tecnoloxía e a información dispoñible para resolver os problemas cos que deben enfrontarse.                                                                                                                                  |
| C7 | CT5-Asumir como profesional e cidadán a importancia da aprendizaxe ao longo da vida.                                                                                                                                                                                   |
| C8 | CT6-Valorar a importancia que ten a investigación, a innovación e o desenvolvemento tecnolóxico no avance socioeconómico e cultural da sociedade.                                                                                                                      |

| Learning outcomes                                                                                                             |     |                             |    |
|-------------------------------------------------------------------------------------------------------------------------------|-----|-----------------------------|----|
| Learning outcomes                                                                                                             |     | Study programme competences |    |
| To know and understand the consequences on the estimators of the classical model if some of its hypotheses are not fulfilled. | A1  | B1                          | C1 |
|                                                                                                                               | A2  | B2                          | C3 |
|                                                                                                                               | A3  | B3                          | C4 |
|                                                                                                                               | A4  |                             | C5 |
|                                                                                                                               | A7  |                             | C6 |
|                                                                                                                               | A8  |                             | C7 |
|                                                                                                                               | A9  |                             | C8 |
|                                                                                                                               | A10 |                             |    |
|                                                                                                                               | A12 |                             |    |
|                                                                                                                               | A13 |                             |    |
| Know how an econometric model can incorporate qualitative information.                                                        | A1  | B3                          | C3 |
|                                                                                                                               | A2  | B4                          | C4 |
|                                                                                                                               | A3  | B5                          | C5 |
|                                                                                                                               | A4  | B6                          | C6 |
|                                                                                                                               | A7  |                             | C7 |
|                                                                                                                               | A8  |                             | C8 |
|                                                                                                                               | A9  |                             |    |
|                                                                                                                               | A10 |                             |    |
|                                                                                                                               | A12 |                             |    |
|                                                                                                                               | A13 |                             |    |



|                                                                                                                    |                                                                                |                            |                                        |
|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------|----------------------------------------|
| Know and understand how dynamic and multi-equation models can be specified and estimated.                          | A1<br>A2<br>A3<br>A4<br>A7<br>A8<br>A9<br>A10<br>A12<br>A13                    | B9                         | C3<br>C4<br>C5<br>C6<br>C7<br>C8       |
| Know and understand the usefulness of econometric models for analyzing economic relationships in the real economy. | A1<br>A2<br>A3<br>A4<br>A5<br>A6<br>A7<br>A8<br>A9<br>A10<br>A11<br>A12<br>A13 | B1<br>B3<br>B7<br>B8<br>B9 | C1<br>C3<br>C4<br>C5<br>C6<br>C7<br>C8 |
| Use appropriate computer tools for the application of the above competencies.                                      | A7<br>A9<br>A10                                                                |                            | C2<br>C3                               |

| Contents                                           |                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Topic                                              | Sub-topic                                                                                                                                                                                                                                                                                                  |
| 1) The generalized linear regression model (GLRM). | 1.1 Model hypothesis. Consequences of the OLS estimation of this model.<br>1.2 Generalized least squares estimators (GLS). Obtaining.<br>1.3 Heteroscedasticity: structure, causes, contrasts, estimation and prediction.<br>1.4 Autocorrelation: structure, causes, contrasts, estimation and prediction. |
| 2) Dummy variables in econometric models.          | 2.1. Definition and incorporation into the model.<br>2.2. Sample stability tests.                                                                                                                                                                                                                          |
| 3) Simultaneous equation models.                   | 3.1. Introduction. Expression of the model.<br>3.2. Hypotheses that define it.<br>3.3. Properties of OLS estimators. Instrumental variables estimation (VI).<br>3.4. Two-stage least squares estimation (MC2E).                                                                                            |

| Planning                       |                                         |                      |                               |             |
|--------------------------------|-----------------------------------------|----------------------|-------------------------------|-------------|
| Methodologies / tests          | Competencies                            | Ordinary class hours | Student's personal work hours | Total hours |
| Introductory activities        | A2 A7 A9 A11 B1                         | 3                    | 0                             | 3           |
| Guest lecture / keynote speech | A9 A11 B2 B8 B9                         | 17                   | 34                            | 51          |
| Workshop                       | A1 A3 A4 A8 A13 B3<br>B4 C1 C4 C5 C7 C8 | 15                   | 30                            | 45          |
| ICT practicals                 | A5 A6 A7 A10 A12 C2<br>C3               | 7                    | 28                            | 35          |
| Objective test                 | B5 B6 B7 B8 C6                          | 2                    | 9                             | 11          |



|                                                                                                                                 |  |   |   |   |
|---------------------------------------------------------------------------------------------------------------------------------|--|---|---|---|
| Personalized attention                                                                                                          |  | 5 | 0 | 5 |
| (*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students. |  |   |   |   |

| Methodologies                  |                                                                                                                                                                                                                                                                                                                |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Methodologies                  | Description                                                                                                                                                                                                                                                                                                    |
| Introductory activities        | The course will begin with an expository session in which the subject will be presented, the activities to be developed by the students and the evaluation criteria will be explained in detail and, finally, the basic concepts of the econometrics subjects previously studied will be reviewed.             |
| Guest lecture / keynote speech | Expository teaching consisting of lectures given by the professors, in which the theoretical content of the program will be developed by means of oral exposition complemented by audiovisual means. Examples and exercises will be included to show the functionality and limitations of the exposed methods. |
| Workshop                       | Each workshop is an interactive session in which applications, exercises and problems are carried out, allowing students to understand the theoretical foundations of the subject and to learn to critically evaluate the results obtained.                                                                    |
| ICT practicals                 | These are interactive sessions dedicated to learning the appropriate computer tools to carry out empirical applications of the methods presented in the theoretical sessions.                                                                                                                                  |
| Objective test                 | Written test to assess the degree of learning.                                                                                                                                                                                                                                                                 |

| Personalized attention                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Methodologies                                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Workshop<br>ICT practicals<br>Objective test | <p>It is the time that the teacher reserves to attend and solve doubts to the students, either individually or in small groups. The attention will be provided during class hours, in the practical hours through ICT and in the weekly tutoring schedule.</p> <p>Personalized attention for students with recognition of part-time dedication and academic dispensation of exemption from attendance will be provided mainly during the weekly tutoring schedule of the lecturers.</p> <p>The Small Group Office hours (TGR) will be taught in person and it is expected that their programming period will take place around weeks 10 and 13 of the semester.</p> |

| Assessment     |                                      |                                                                                                                                                                                                                                                                                                                      |               |
|----------------|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Methodologies  | Competencies                         | Description                                                                                                                                                                                                                                                                                                          | Qualification |
| Workshop       | A1 A3 A4 A8 A13 B3 B4 C1 C4 C5 C7 C8 | The active presence of students in these classes is recommended, in which they must solve and deliver the tests, problems, exercises and questions that are proposed to them and in the manner indicated during the course. These activities will represent in the evaluation up to a maximum of 3 points out of 10. | 30            |
| Objective test | B5 B6 B7 B8 C6                       | Written test for the evaluation of learning. You can combine different types of theoretical and practical questions. This test will represent in the evaluation up to a maximum of 7 points out of 10                                                                                                                | 70            |

| Assessment comments |
|---------------------|
|---------------------|



## A) EVALUATION REGULATIONS 1. Evaluation conditions 1.1 Rules for the realization of the face-to-face evaluation tests

According to the regulations approved by the Board of the Faculty of Economics and Business, it is forbidden to access the classroom in which the test is held with any device that allows communication with the outside and / or storage of information, including notes of the subject or similar. If a person is seen with such a device within reach during the test, it will be assumed that he/she is using it for fraudulent purposes and the corresponding regulations will be applied. Persons who bring such devices on the day of the test - including cell phones or smart watches - and have nowhere to leave them, must deposit them at the entrance of the classroom before the start of the test. The faculty is not responsible for their possible loss or misplacement. 1.2 Rules for taking the controlled evaluation tests through Teams

Test takers must be connected to Teams at all times, unless otherwise specified in the instructions for that particular test. If a person disconnects from Teams while taking the test or leaves the field of view of the camera during the test, the test will be considered undelivered. Each student must have the webcam activated at all times; disconnection of the camera will be considered equivalent to a disconnection from Teams, and will result in the test being considered undeliverable.

The faculty will record the test as a guarantee of the identification of the student and the completion of the evaluation process required by the Organic Law of Universities. It is the responsibility of each student to configure their space to avoid the violation of privacy or personal data of themselves or third parties. In all matters relating to the recording of these tests, the regulations of the university will be strictly applied. Unless otherwise stated, the same rules apply as for a face-to-face test: no device that allows communication with third parties and/or storage of information, including subject notes or similar, cell phones, smart watches, tablets, computers, etc., may be accessed. If a person is seen with such a device within reach during the test, it will be assumed that he/she is using it for fraudulent purposes and the corresponding regulations will be applied. 2. Student identification

The student must prove his or her identity in accordance with the regulations in force. For this purpose, the faculty may require at any time the identification of the student, who must prove it by means of the student card of the UDC, the national identity card, or an identification document that in the opinion of the faculty is equivalent to the above.

## 3. Procedure for action in the event of fraudulent performance of an activity that counts in the evaluation.

Fraudulent performance of tests or evaluation activities,

once verified, will directly imply a failing grade in the call in which it is

committed: the student will be graded with "fail" (numerical grade 0)

in the corresponding call of the academic year, whether the commission of the

offense occurs on the first opportunity or on the second. For this, the

qualification in the first opportunity will be modified if necessary. B) TYPES OF GRADE

## 1. No-show grade

According to the regulations approved by the Board of the Faculty of Economics and Business, only those students who have submitted activities that together account for less than 20% of the final grade of that opportunity will be graded as "No-shows". 2. Students with recognition of part-time dedication and academic dispensation of attendance exemption. The same evaluation rules will be applied as for students enrolled full time, both in the first and second opportunity. Part-time students are exempt from class attendance, but have the same obligation to attend any type of face-to-face evaluation test as full-time students.

## C) EVALUATION OPPORTUNITIES 1. First opportunity

The evaluation of the subject will consist of one or more workshops and an objective test: the workshops will have a maximum qualification of 30%, the remaining 70% of the subject will correspond to an objective test which will be carried out on an established date in the official academic calendar, in which the contents of the subject (topics 1, 2 and 3) will be evaluated, being necessary to obtain a minimum of 2.5 points out of 7 in this test. Therefore, to pass the subject it is necessary to achieve a minimum of 2.5 points out of 7 in the first opportunity objective test and obtain a mark equal or higher than 5 points in the sum of the qualifications of two workshops and the objective test. Students who do not reach the minimum mark in the objective test (2.5 points out of 7) and who in the global computation of the evaluation obtain a

final mark equal to or higher than 5 points, will not pass the course and will appear in the minutes with a grade of 4.5. 2. Second opportunity The second opportunity exam will be held on the day and time set by the Faculty of Economics and Business for the official exam of the second opportunity. The evaluation criteria in the second opportunity will be the same as those applied in the first opportunity, therefore the objective test will continue to be valued at 70% of the total mark (with a minimum of 2.5 points out of 7). To obtain 100% of the mark in this second opportunity, the lecturer will indicate the test that will be necessary to recover the 30% of continuous evaluation. Students who want to opt for the recovery of this 30% of the evaluation must take into account that the final mark of the continuous evaluation will be the one obtained in this second opportunity, losing the continuous evaluation obtained during the first. To pass the subject, the final mark must be equal to or greater than 5 points. Students who do not reach the minimum mark in the objective test (2.5 points out of 7) and who in the global computation of the evaluation obtain a final mark equal to or higher than 5 points, will not pass the subject and will appear in the minutes with a grade of 4.5. 3. Advanced convocation

The evaluation corresponding to the advanced opportunity will be developed through a single test to be held on the date and time established by the center. This test will be evaluated with a maximum of 10 points and will be based on the complete syllabus described in the "Contents" section of the guide for the



current academic year. In order to pass the subject it will be necessary to obtain a minimum of 5 points in this objective test. These evaluation conditions are specific for the advanced opportunity and will only be applied in this case.



## Sources of information

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Basic</b>         | <ul style="list-style-type: none"> <li>- Carrascal, U., González, Y. y Rodríguez, B. (2000). Análisis econométrico con EViews. RA-MA</li> <li>- Guisán, M.C. (1997). Econometría. McGraw-Hill</li> <li>- Gujarati, D. y Porter, D. (2011). Econometría. McGraw-Hill</li> <li>- Fernández Gallastegui, Alonso (2004). Econometría. Pearson. Prentice Hall</li> <li>- Ramil, M., Rey, C., Lodeiro, M., Arranz, M. (2013). Introducción a la Econometría. Noroeste S.L ISBN 13:978-84-92794-64-5</li> </ul>                                                                                                                                                                                                                                    |
| <b>Complementary</b> | <ul style="list-style-type: none"> <li>- Pena Trapero, J. et al (1999). Cien ejercicios de econometría. Pirámide</li> <li>- Pulido, A. y Pérez, J. (2001). Modelos econométricos. Pirámide</li> <li>- Ramil, M. y Arranz, M. (2001). Modelos de ecuaciones simultáneas. ISBN 84-688-6034-4</li> <li>- Wooldridge, Jeffrey (2015). Introducción a la econometría. Un enfoque moderno.. Cengage Learning</li> </ul> <p>A medida que se avanza no coñecemento das técnicas econométricas é recomendable a lectura de artigos enfocados a resolver problemas reais da economía. Poderanse utilizar, ademáis, outros libros de texto así como distintas fontes de datos e materiais dispoñibles na rede que se detallarán ao longo do curso.</p> |

## Recommendations

### Subjects that it is recommended to have taken before

Statistics I/611G01006  
 Mathematics I/611G01009  
 Microeconomics and Markets/611G01012  
 Statistics II/611G01014  
 Macroeconomics/611G01017  
 Statistical Methods and Introduction to Econometrics/611G01019  
 Econometrics I/611G01022  
 Mathematics II/611G02010

### Subjects that are recommended to be taken simultaneously

### Subjects that continue the syllabus

### Other comments

1) PREREQUISITES It is very important that students are familiar with the contents of the subjects Introduction to Econometrics and Econometrics I.2)  
 OTHER CONSIDERATIONS- The delivery of the documentary works to be carried out in this subject will be requested virtually, in digital format and without the need to print them.- The importance of ethical principles related to sustainability values in personal and professional behavior must be taken into account.- The involvement of students in activities carried out by the Faculty of Economics and Business, such as attendance at conferences, congresses, participation in the Tutorial Action Plan (TAP), collaboration with the Green Campus project, etc. will be positively valued.- Work will be done to identify and modify sexist prejudices and attitudes and influence the environment to modify them and promote values of respect and equality.- We will facilitate the full integration of students who, for physical, sensory, mental or sociocultural reasons, experience difficulties in gaining adequate, equal and profitable access to university life.

(\*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.