



## Teaching Guide

| Teaching Guide           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |                      |           |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------------|-----------|
| Identifying Data         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |                      | 2020/21   |
| Subject (*)              | Advanced Econometrics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        | Code                 | 611532027 |
| Study programme          | Máster Universitario en Economía                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |        |                      |           |
| Descriptors              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |                      |           |
| Cycle                    | Period                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Year   | Type                 | Credits   |
| Official Master's Degree | 2nd four-month period                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | First  | Optional             | 3         |
| Language                 | Spanish                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |        |                      |           |
| Teaching method          | Face-to-face                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |        |                      |           |
| Prerequisites            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |                      |           |
| Department               | Economía                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |        |                      |           |
| Coordinador              | Iglesias Vazquez, Emma Maria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | E-mail | emma.iglesias@udc.es |           |
| Lecturers                | Iglesias Vazquez, Emma Maria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | E-mail | emma.iglesias@udc.es |           |
| Web                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |                      |           |
| General description      | The objective of this course is twofold. On the one hand, it is about students knowing the statistical and econometric techniques and procedures that are especially suitable for solving real problems that arise in the field of economics. Secondly, that they understand the statistical properties of these techniques and procedures to know when and how they can apply them.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |        |                      |           |
| Contingency plan         | 1. Content changes<br>There are no modifications.<br>2. Methodologies<br>* Teaching methodologies that are maintained<br>During semi-face-to-face (or non-face-to-face) period, part (or all) methodologies are carried out by means of telematic tools.<br>* Teaching methodologies that are modified<br>During a semi-presential (or non-face-to-face period), part (or all) methodologies are carried out through telematic tools.<br><br>3. Mechanisms for personalized attention to students<br>Telematic tools. When students need it.<br>4. Modifications under evaluation<br>In semi-presential (or non-face-to-face) periods, all evaluation is carried out through telematic tools.<br><br>* Observations of assessment:<br><br>5. Modifications of the bibliography or webgraphy<br>There are no modifications. Students have all the material in moodle and faitic. |        |                      |           |

## Study programme competences

| Code | Study programme competences                                                                                                                                                                                                     |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A1   | CE1 - Conocimiento de las herramientas matemáticas, estadísticas y econométricas necesarias para manejar con rigor los modelos económicos                                                                                       |
| A8   | CE8 - Analizar y proponer cambios en el diseño de las organizaciones y de los sistemas de incentivos que mejoren el funcionamiento de los mismos en tener de su eficiencia.                                                     |
| A10  | CE10 - Participar en grupos de trabajo interdisciplinarios ligados al estudio de las tendencias socio- económicas de largo plazo.                                                                                               |
| A12  | CE12 - Analizar las ventajas y los inconvenientes de la regulación y de las políticas económicas y proponer alternativas.                                                                                                       |
| B6   | CG1 - Aplicar los conocimientos de economía a la identificación, previsión y solución de los problemas económicos en general, y en particular los relativos al nivel de especialización, en entornos nuevos o poco conocidos.   |
| B13  | CG8 - Capacidad para entender y explicar datos económicos y para trabajar con ellos mediante las técnicas más actuales.                                                                                                         |
| C1   | CT1 - Capacidad para comprender el significado y aplicación de la perspectiva de género en los distintos ámbitos de conocimiento y en la práctica profesional con el objetivo de alcanzar una sociedad más justa e igualitaria. |



|    |                                                                                                                                                |
|----|------------------------------------------------------------------------------------------------------------------------------------------------|
| C2 | CT2 - Capacidad para comunicarse por oral e por escrito en lingua gallega.                                                                     |
| C3 | CT3 - Sostenibilidade y compromiso ambiental. Uso equitativo, responsable y eficiente de los recursos.                                         |
| C4 | CT4 - Capacidad para interaccionar y defender con rigor, claridad y precisión ante otros especialistas trabajos, propuestas, nuevas ideas etc. |
| C7 | CT7 - Capacidad para comunicarse por oral y por escrito en lingua inglesa.                                                                     |

| Learning outcomes                                                                                                                                                    |                             |             |                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------|--------------------------|
| Learning outcomes                                                                                                                                                    | Study programme competences |             |                          |
| Understanding the basic mathematical tools necessary for the formalization of economic behavior.                                                                     | AC1<br>AC8<br>AC10<br>AC12  |             | CC1<br>CC3<br>CC4<br>CC7 |
| Acquiring skills in the search, identification and interpretation of relevant economic information sources and their content.                                        | AC1<br>AC8<br>AC10<br>AC12  |             | CC1<br>CC3<br>CC4<br>CC7 |
| Being able to formulate simple models of relation of the economic variables, based on the use of technical instruments.                                              | AC1<br>AC8<br>AC10<br>AC12  | BC6<br>BC13 | CC1<br>CC3<br>CC4<br>CC7 |
| Evaluating, using empirical techniques, the consequences of different action alternatives and select the most suitable ones.                                         | AC1<br>AC8<br>AC10<br>AC12  | BC6         | CC1<br>CC3<br>CC4<br>CC7 |
| Encouraging a critical and self-critical attitude. Be able to generate their own reflections on problems of an economic nature and their social and ethical effects. | AC8<br>AC10<br>AC12         | BC6<br>BC13 | CC1<br>CC4<br>CC7        |
| Self-control in the work system, with respect to time and planning.                                                                                                  | AC10                        | BC6         | CC1<br>CC3<br>CC4<br>CC7 |
| Encouraging the research spirit, developing the ability to analyze new problems with the instruments acquired.                                                       | AC1<br>AC8<br>AC10<br>AC12  | BC6<br>BC13 | CC1<br>CC4<br>CC7        |
| Acquiring competences related to the search of documentation organization and to the presentation of the work in a suitable way to the audience.                     | AC1<br>AC8<br>AC10<br>AC12  | BC6<br>BC13 | CC1<br>CC3<br>CC4<br>CC7 |
| Reading and communicating in English in the professional field. Ability to prepare economic advisory reports.                                                        |                             |             | CC7                      |
| Respect for ethical and civic values. Ethical commitment to work. Capacity for teamwork.                                                                             | AC10                        |             | CC4                      |
| Responsibility and ability to assume commitments. Skills to argue coherently and intelligibly, both orally and in writing.                                           | AC10                        |             | CC2<br>CC4<br>CC7        |

| Contents |           |
|----------|-----------|
| Topic    | Sub-topic |



|                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lecture 1.- Models of limited dependent variables and corrections in the sample selection     | 1.1. Logit and probit models for binary response<br>1.2. The tobit model for corner solutions<br>1.3. The Poisson regression model<br>1.4. Censored and truncated regression models<br>1.5. Corrections of the sample selection                                                                                                                                                                                                            |
| Lecture 2.- Panel data models                                                                 | 2.1. Combination of cross sections in time: simple methods for panel data<br>2.1.1. Independent combination of cross sections over time<br>2.1.2. Analysis of panel data for a period of two years<br>2.1.3. Differentiation with more than two periods<br>2.2. Advanced methods for panel data<br>2.2.1. Estimation of fixed effects<br>2.2.2. Random effects models<br>2.2.3. Application of panel data methods to other data structures |
| Lecture 3.- Quantile regression and other econometric techniques. Spatial econometric models. | 3.1. Quantile regression<br>3.2. Bootstrap<br>3.3. Nonparametric regression<br>3.4. Spatial econometric models                                                                                                                                                                                                                                                                                                                             |

| Planning                                                                                                                        |                                     |                      |                               |             |
|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------------|-------------------------------|-------------|
| Methodologies / tests                                                                                                           | Competencies                        | Ordinary class hours | Student?s personal work hours | Total hours |
| Guest lecture / keynote speech                                                                                                  | A1 A8 A12 B6 B13 C1 C3 C4 C7        | 10                   | 19                            | 29          |
| Supervised projects                                                                                                             | A1 A8 A10 A12 B6 B13 C1 C2 C3 C4 C7 | 1                    | 19                            | 20          |
| ICT practicals                                                                                                                  | A1 A8 A10 A12 B6 B13 C1 C3 C4 C7    | 5                    | 20                            | 25          |
| Personalized attention                                                                                                          |                                     | 1                    | 0                             | 1           |
| (*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students. |                                     |                      |                               |             |

| Methodologies                  |                                                                                                                                  |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Methodologies                  | Description                                                                                                                      |
| Guest lecture / keynote speech | Oral presentation, supported by audiovisual media, which includes theoretical concepts and practical examples.                   |
| Supervised projects            | Each student must perform, under supervision, a work with real data applying the techniques that have been taught in the course. |
| ICT practicals                 | Students must carry out, with the support and direction of the professors, the empirical applications that are proposed to them. |

| Personalized attention         |                                                                                                                                                                      |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Methodologies                  | Description                                                                                                                                                          |
| ICT practicals                 | Practices through ICT, master session and supervised works. To carry out these activities, students need advice and, where appropriate, the supervision of teachers. |
| Guest lecture / keynote speech | Each student must perform, under supervision, a course work with real data applying the techniques that have been taught in the course.                              |
| Supervised projects            |                                                                                                                                                                      |

| Assessment          |                                     |                                     |               |
|---------------------|-------------------------------------|-------------------------------------|---------------|
| Methodologies       | Competencies                        | Description                         | Qualification |
| Supervised projects | A1 A8 A10 A12 B6 B13 C1 C2 C3 C4 C7 | Individual work of up to 1000 words | 100           |



## Assessment comments

Knowledge of English is required, especially in reading comprehension, since part of the material that will be provided to the student is in this language.

In the second opportunity, 100% of the grade can be recovered through a supervised homework. Students who pass the course at the first opportunity, are not allowed to carry out the second opportunity.

The evaluation conditions of the advanced opportunity will be specific to this opportunity, which will be evaluated through a single supervised homework, which will mean 100% of the final qualification. Students with part-time dedication or academic waiver of class attendance will be evaluated with the same criteria as full-time students. Qualification of not presented: Corresponds to the student, when he/she only participates in evaluation activities that have a weight of less than 20% on the final grade, regardless of the grade achieved. The student must prove her/his identity in accordance with current regulations.

The tutorials and small group tutorials will always be done online.

If there are circumstances that advise it of various kinds, the subject may be passed in semi-face mode even if there has not been a change in the general health situation.

During a semi-presential (or non-presential) period, part (or all) of the methodologies will be carried out using telematic tools: Moodle, Teams and email.

## Sources of information

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Basic</b>         | ? Cameron, A.C. & Trivedi, P. (2005). Microeconometrics: Methods and Applications, Cambridge University Press. Capítulos 4.6, 9, 11, 14, 16, 17, 20, 21, 22, 23, 24 y 25. <a href="http://cameron.econ.ucdavis.edu/mmabook/mma.html">http://cameron.econ.ucdavis.edu/mmabook/mma.html</a><br>? Wooldridge, J. M., Introductory Econometrics: A Modern Approach, 4ta Edición, Cengage, Capítulos 13, 14, 17.<br>? Koenker, Roger, and Kevin F. Hallock (2001), Quantile Regression, Journal of Economic Perspectives 15 (4), 143-156. <a href="http://www.econ.uiuc.edu/~roger/research/rq/QRJEP.pdf">www.econ.uiuc.edu/~roger/research/rq/QRJEP.pdf</a><br>? Hansen, B. (2018), Econometrics, Chapters 13, 17. <a href="https://www.ssc.wisc.edu/~bhansen/econometrics/">https://www.ssc.wisc.edu/~bhansen/econometrics/</a><br>? Software básico: Gretl. <a href="http://gretl.sourceforge.net/">http://gretl.sourceforge.net/</a> y R: <a href="http://www.r-project.org">www.r-project.org</a> . RStudio (Versión Desktop- Open Source Edition): <a href="http://www.rstudio.com">www.rstudio.com</a> , <a href="https://cran.r-project.org/web/packages/wooldridge/index.html">https://cran.r-project.org/web/packages/wooldridge/index.html</a> |
| <b>Complementary</b> | ? Hansen, B. (2018), Econometrics, Chapters 16, 21. <a href="https://www.ssc.wisc.edu/~bhansen/econometrics/">https://www.ssc.wisc.edu/~bhansen/econometrics/</a><br>? Wooldridge, J. M. (2002), Econometric Analysis of Cross Section and Panel Data, The MIT Press, Cambridge, Massachusetts London, England.<br>? Hansen, B. (2018), Econometrics, Chapters 16, 21. <a href="https://www.ssc.wisc.edu/~bhansen/econometrics/">https://www.ssc.wisc.edu/~bhansen/econometrics/</a><br>? Wooldridge, J. M. (2002), Econometric Analysis of Cross Section and Panel Data, The MIT Press, Cambridge, Massachusetts London, England.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## Recommendations

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

Quantitative Methods/611532004  
Research Techniques/611532006  
Econometric Techniques/611532003  
Aggregate Economic Analysis and Growth/611532002  
Economic Thought and Institutions/611532005  
Economic Decisions and Market Analysis/611532001

### Subjects that are recommended to be taken simultaneously

### Subjects that continue the syllabus

### Other comments

(\*)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.