

TEACHING GUIDE
APPLIED ECONOMETRICS (SEMIPRESENCIAL)

GRADO EN ECONOMÍA (INGLÉS)

ACADEMIC YEAR 2023-24

Date: 12-07-2023

I.-Subject Identification	
Type	OPTATIVA
Teaching period	4 course, 2Q semester
Nº of credits	6
Language in wich the subject is taught	English

II.-Presentation
<p>The aim of this course is to equip students with fundamental econometric tools for economic analysis and their application in evaluating the impact of public policies and business investments on economic growth. We will delve into five key econometric methodologies for causal inference, including random experiments, regression, instrumental variables, difference-in-differences, and regression discontinuity. These tools will be explored through real-world examples and practical applications using econometric software and spreadsheets, enabling students to understand and analyze economic trends effectively.</p> <p>This blended learning course will be driven by student-focused learning methods, using our virtual classroom as the primary communication tool between teachers and students. Regular engagement with the virtual classroom is expected from students. Our teaching approach emphasizes guiding students through their learning journey via the virtual campus, which will facilitate student-teacher interaction, the presentation of new topics, distribution of study materials, organization of individual and group activities, and general communication.</p> <p>Prerequisite knowledge for this course includes a theoretical grounding in econometrics and practical experience with econometric tools and spreadsheets.</p> <p>TEACHING METHODOLOGY & STUDENT COMMUNICATION</p> <p>Our teaching methodology is a blend of online learning, self-guided study, and tutoring. Multimedia resources will be extensively used, including task assignments via the "Tasks" feature, video lectures through "Blackboard Collaborate", and group or individual tutoring via the "Forum".</p> <p>The course will have a sequential structure, consisting of mandatory tasks and more complex, voluntary assignments to challenge the students' understanding and facilitate deeper learning.</p>

III.-Competences
Generic competences
<p>CT05. Knowledge of information systems relating to the field of study</p> <p>CT06. Ability to analyse and search for information from different sources</p> <p>CT07. Ability to solve problems</p> <p>CT08. Ability to make decisions</p> <p>CB02 . That students are able to apply their knowledge to their work or vocation in a professional manner and have the skills that are typically demonstrated through the preparation and defense of arguments and problem solving within their field of study.</p> <p>CB03 . That students have the ability to gather and interpret relevant data (usually within their field of study) to express judgments that include a reflection on relevant topics related to social, scientific or ethical areas.</p> <p>CB04 . That students are able to transmit information, ideas, problems and solutions to both specialized and non-specialized audience.</p> <p>CB05 . That students have developed the learning skills needed to undertake further studies with a considerable degree of autonomy.</p>
Specific competences

CE01. Ability to put knowledge of economics into practice
CE02. Information search and research skills
CE06. Ability to learn and apply the different qualitative techniques used in economics
CE14. Ability to convert an empirical problem into an area of research and reach conclusions
CE19. Forecasting with different economic variables

IV.-Contents

IV.A.-Syllabus

Chapter I: Introduction. This chapter delves into the vital role of simulation models in the fields of business management and public policy.

Chapter II: Random Experiments. This section investigates the inherent randomness of experiments, ensuring that the variable of interest remains unaffected by additional influences that might condition the results. It also introduces Instrumental Variables as a common solution to issues such as omitted variables, measurement errors in explanatory variables, sample self-selection bias, and simultaneous equation estimation problems.

Chapter III: Difference-in-Differences. The difference-in-differences methodology uses time-based variations and disparities between two groups. This approach contrasts the change in the treated group over time against the control group's change. Within a multiple regression context, the difference-in-differences is examined through the interaction term between the treatment group and the post-treatment period. It serves as a valuable method for estimating credible statistical causal inference in the realm of observational studies for public program evaluation.

Chapter IV: Instrumental Variables and Regression Discontinuity Designs. The Instrumental Variables technique uses specific variables known as instruments to determine an exogenous portion of the variability from the endogenous predictor. The Regression Discontinuity Design leverages the similarity of individuals or companies near a specific threshold. The difference in outcomes between individuals just below the threshold (not receiving the program) and those just above (receiving the program) can be interpreted as the intervention's impact.

IV.B.-Training activities

Type	Title
Practical / resolution of exercises	Practice 3. Econometric analysis using the difference-in-difference approach and providing evidence of causality about a topic proposed by the teacher
Practical / resolution of exercises	Practice 1. Econometric analysis on the topics proposed by the teacher using the econometric software STATA
Practical / resolution of exercises	Practice 2. Econometric analysis based on Chapter III and IV using STATA about a topic related to economics of education

V.-Student workload		
Lecture classes	20	
Practical classes/resolution of exercises, case studies, etc.	35	
Practical sessions in technological laboratories, hospitals, etc.	0	
Tests	5	
Academic tutorials	14	
Related activities: conferences, seminars, etc.	4	
Preparation of lecture classes	20	
Preparation of practices, exercises, cases studies work	82	
Test preparation	0	
Total student workload	180	
VI.-Methodology and academic programme		
Type	Period	Content
Master classes	Week 1 to Week 1	Chapter I &2
Work placements	Week 2 to Week 5	Practice Chapter II
Master classes	Week 6 to Week 6	Chapter III
Work placements	Week 7 to Week 10	Practice Chapter III
Master classes	Week 11 to Week 11	Chapter IV
Master classes	Week 12 to Week 12	Chapter V
Work placements	Week 13 to Week 15	Practice Chapter V
Academic Tutorials	Week 1 to Week 15	An individualized follow-up will be done of the student through the virtual classroom, email and video conferencing

VII.-Assessment methods

VII.A.-Assessment weighting

Continuous ordinary assessment:

The distribution and characteristics of the assessment tests are those described below. Only in exceptional case and for special reasons may the teacher add changes to the Guide. These changes will require the prior consultation with the Subject Head and the prior and explicit authorisation of the Degree Programme Coordinator, who will notify the Vice-Rector's office in charge of Academic Affairs of the modifications made. In any case, the changes proposed must take into account the stipulations of the verified report. In order for these changes to take effect, they must be duly communicated at the start of the course to the students using Aula Virtual.

The combination of activities that are not re-assessable cannot exceed 50% of the subject grade and, in general, cannot have a minimum grade (except for the case of laboratory or clinical work placements, where duly justified), and tests which exceed 60% of the subject weighting cannot be added.

Extraordinary assessment: Students who do not manage to pass the ordinary assessment, or who did not attend, will be subject to completion of an extraordinary assessment to verify their acquisition of the skills established in the guide, only for activities that are re-assessable.

Description of the tests for assessment and their weights.

Description of the tests and their weight in the final score

Activity	Tye	Weigh	Week	Content
Practice 1	Retake in E.E.	16%	Week 5	Practice 1
Practice 2	Retake in E.E.	17%	Week 10	Practice 2
Practice 3	Retake in E.E..	17%	Week 15	Practice 3
Examination	Retake in E.E.	50%	Ordinary E.	
EE: Extraordinary Evaluation				

- The final exam and the practices can be re-evaluated in the extraordinary call.
- In the event that the student does not achieve the minimum grade (5) in the final exam of the regular call, they will not be able to pass the subject. In this case, they will have to go to the extraordinary call.

VII.B. Assessment of students with an academic exemption

Student who wish to opt for this assessment will have to get an academic exemption for the subject, which they will have to request from the Dean or Director of the Centre which teaches their course. An academic exemption may be granted where the subjects own characteristics allow for it.

Subject with the possibility of an exemption: Yes

VII.C. Review of assessment tests

In accordance with the exam appeal regulations of the Universidad Rey Juan Carlos.

VII.D.-Students with a disability or special educational needs

Curricular adaptations for students with a disability or special educational needs will be determined by the Disabled Students Support Department, in accordance with the regulations governing the Disabled Students Support service, approved by the Universidad Rey Juan Carlos Council, in order to guarantee equal opportunities, inclusive treatment, universal accessibility and a greater guarantee of academic success.

For this purpose, this Department will have to issue a curricular adaptation report, therefore students with disabilities or special educational needs must contact the Department to analyse the different alternatives together.

VII.E.-Academic behaviour, academic integrity and honesty

The Universidad Rey Juan Carlos is completely committed to the highest standards of academic integrity and honesty. Therefore, studying at the URJC means you accept and agree to the academic integrity and honesty values described in the University's Code of Ethics. In order to monitor this procedure, the University has Regulations on academic behaviour at the Universidad Rey Juan Carlos and uses different tools (anti-plagiarism, supervision?) which provides a collective assurance that these essential values are completely developed

VII.-Bibliography
Referecense Generic
J.D. Angrist and J.S. Pischke, Mostly Harmless Econometrics: An Empiricist's Companion, Princeton University Press, 2009 J.D. Angrist and J.S. Pischke, Mastering 'Metrics: The Path from Cause to Effect, Princeton University Press, 2015.
Reference literature

IX.-Lecturers/Teachers/Professors	
Lecturer/teacher/professor´s name	ISMAEL SANZ LABRADOR
E-mail address	ismael.sanz@urjc.es
Department/field	Economía Aplicada I e Historia e Instituciones Económicas
Category	Titular de Universidad
Academic qualifications	Doctor
Subject Coordinator	Yes
Academic tutorial timetable	Para consultar las tutorias póngase en contacto con el/la profesor/-a a través de correo electrónico
Nº of Quinquenios	3
Nº of Sexenio	4
Nº period for technology transfer	0
Stretch Docentia	1