
Academic Year: (2024 / 2025)**Review date: 19-05-2024**

Department assigned to the subject: Social Sciences Department**Coordinating teacher: LEON ALFONSO, SANDRA****Type: Compulsory ECTS Credits : 6.0****Year : 2 Semester : 1**

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Statistics I
Statistics II

OBJECTIVES

Knowledge or Content:

K-7. Advanced knowledge and understanding of statistics applied to Social Sciences.
K-8. Specialized and applied learning of quantitative research methods in the study of political and social phenomena.
K-9. Advanced learning about the role of causality in Social Sciences.

Skills:

S-5. Ability to organize and express ideas clearly and unambiguously, and to support theoretical arguments on a topic through a critical analysis of the literature.
S-7. Understanding the fundamental concepts of descriptive statistics, probability theory, and the foundations of inferential statistics.
S-8. Knowing the properties of different types of quantitative data associated with the study of Social Sciences and mastering data analysis techniques.
S-9. Understanding the techniques of causal inference in social research.

Competences:

C-7. Ability to select appropriate statistical models for data analysis within the framework of conducting research in Social Sciences.
C-8. Handling quantitative research data: mastering analysis tools and data management software in the empirical development of a research paper.
C-9. Being able to generate new data and apply causal inference techniques in the empirical development of a research question.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Causality and Counterfactuals
2. Regressions and causal effects
3. Matching Models
4. Synthetic controls
5. Differences-in-Differences
6. Natural Experiments
7. Instrumental Variables
8. Regression Discontinuity Design
9. New Trends in Causal Inference

LEARNING ACTIVITIES AND METHODOLOGY

Training Activities:

AF3 - Theoretical-practical class: learning theoretical content on mathematics, statistics, and causal inference.

AF4 - Laboratory practices: using software programs on computers to develop statistical models learned in theoretical classes.

AF5 - Tutorials: the possibility of weekly meetings with the course instructor.

AF6 - Individual student work.

Teaching Methodologies:

MD1 - Classroom presentations by the professor with the support of computer and audiovisual media, in which the main concepts of the subject are developed.

MD2 - Critical reading of texts recommended by the subject professor: press articles, reports, manuals, and/or academic articles.

MD3 - Resolution of practical cases, problems, etc., proposed by the professor individually or in groups.

MD5 - Preparation of individual or group assignments and reports.

ASSESSMENT SYSTEM

% end-of-term-examination: 70

% of continuous assessment (assignments, laboratory, practicals...): 30

SE1 - Continuous assessment (midterm exams, submission of assignments, class participation, and any other activity assessed during the semester)

SE3 - Final project

Continuous evaluation will be based on the presentation of a published paper and student participation in class (30%). The final paper will count for 70% of the grade.

BASIC BIBLIOGRAPHY

- Angrist and Pischke Mostly Harmless Econometrics. An Empiricist's Companion, Princeton University Press, 2008

- Jeffrey M. Wooldridge Econometric Analysis of Cross Section and Panel Data, The MIT Press, 2010

- Morgan and Winship Counterfactuals and causal inference. Methods and Principles for Social Research, Cambridge University Press, 2007

ADDITIONAL BIBLIOGRAPHY

- Imbens y Rubin Causal Inference for Statistics, Social, and Biomedical Sciences, Cambridge University Press, 2015

BASIC ELECTRONIC RESOURCES

- Bas van der Klaauw, . From micro data to causality: Forty years of empirical labor economics:

<http://www.sciencedirect.com/science/article/pii/S0927537114000827>

- Richard Blundell and Monica Costa Dias . Alternative Approaches to Evaluation in Empirical Microeconomics:

<http://jhr.uwpress.org/content/44/3/565.short>