



Econometría I /
Econometrics I

Grado en Economía y
Negocios
Internacionales



UNIVERSIDAD
NEBRIJA

SYLLABUS

Course: Econometrics I

Degree: Grado en Economía y Negocios Internacionales

Type: Core

Languages: This course will be taught in English

Modality: In-Person and Online

Credits: 6

Year: 2nd

Semester: Fall Semester

Professors and contact information: Santiago Budría, Saturnino Mendoza and Diego Vicente.

1. COMPETENCIES AND LEARNING OUTCOMES

1.1. Competencies

Basic competencies

CB1, CB2, CB4, CB5

General competencies

CG8, CG9.

Specific competencies

CE9, CE17, CE18.

1.2. Learning outcomes

At the end of this subject, the student should:

- Know the techniques of data collection, compilation and analysis.
- Organize information
- Use quantitative techniques for the analysis of data and economic variables.

2. CONTENTS

2.1. Prerequisites

None.

2.2. Description

Introduction to multiple regression techniques with focus on economic applications. Discusses extensions to discrete response, panel data, and time series models, as well as issues such as omitted variables, missing data, sample selection, randomized and quasi-experiments, and instrumental variables. Also develops the ability to apply econometric and statistical methods using computer packages.

2.3. Covered Topics

BLOCK 1: INTRODUCTION TO DESIGN OF EXPERIMENTS AND HYPOTHESIS TESTING

Topic 1: DESIGN OF EXPERIMENTS

- 1.1 Objectives and elements of experimental analysis
- 1.2 Experimental control
- 1.3 Applications in economics and business

Topic 2: HYPOTHESIS TESTING

- 2.1 Hypothesis testing. Fundamentals and elements.
- 2.2 Hypothesis testing for one parameter.
- 2.3 Hypothesis testing for two groups: comparison of means, comparison of proportions.
- 2.4 Applications in economics and business

BLOCK 2: CAUSAL MODELS

Topic 3: THE SIMPLE AND MULTIPLE LINEAR REGRESSION MODEL.

- 3.1. Economic and econometric models: elements, steps.
- 3.2. Linear Regression with One Regressor
- 3.3. Linear Regression with Multiple Regressors
- 3.4. Basic assumptions about the model.

Topic 4: ESTIMATION

- 4.1 Estimation of the parameters by Ordinary Least Squares
- 4.2 Interpretation of results
- 4.3 Goodness of fit
- 4.4 Applications in economics and business

Topic 5: MODELING

- 5.1 Modelling of qualitative characteristics and non-linearities

Topic 6: VALIDATION. HYPOTHESIS TESTING

- 6.1 Statistical validity and economic validity
- 6.2 Individual, joint, and constrained significance tests
- 6.3 Applications in economics and business

Topic 7: MULTICOLLINEARITY

- 7.1 Perfect Multicollinearity
- 7.2 Imperfect multicollinearity: consequences, detection and correction

2.4. Individual / Group Assignments

During the course, some of the following activities, practices, reports or projects, or others with similar objectives or nature, may be developed:

Team work. Students will present an original work based on data collection and the subsequent elaboration, interpretation and validation of an econometric model relating economic variables.

2.5. Learning Activities

In-Person Learning	Hours	Attendance %
AF1 Lecture / Theoretical Foundations	45	100%
AF2 Case Studies	9	100%
AF3 Tutorial	9	100%
AF4 Individual / Group Assignments	18	0%
AF5 Online Assignments	6	50%
AF6 Extracurricular Materials	6	0%
AF7 Self Study	57	0%

Online Learning	Hours	Attendance %
AF8 Online Lecture	12	50%
AF9 Online Case Studies	12	0%
AF5 Online Assignments	48	0%
AF6 Extracurricular Materials	18	0%
AF7 Self Study	24	0%
AF10 Online Tutorial	12	100%
AF11 Individual / Group Assignments	24	50%

Methodologies:

In-Person: MD1, MD2, MD3, MD4

Online: MD1, MD2, MD3, MD4

3. GRADING RUBRICS

3.1. Grades

Grades are calculated as follows:

- 0 - 4.9 Fail (SS)
- 5.0 - 6.9 Pass (AP)
- 7.0 - 8.9 Notable (NT)
- 9.0 - 10 Outstanding (SB)

The mention of "Matrícula de Honor" may be awarded to students who have obtained a grade equal to or greater than 9.0.

3.2. Evaluation criteria

Ordinary Session

Modality: In-Person

Evaluation Criteria	Percentage
S1 Attendance and Participation	10%
S2 Individual / Group Assignments	30%
S3 Midterm Exam (On-Site)	10%

S4 Final Exam (On-Site)	50%
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Modality: Online

Evaluation Criteria	Percentage
S10 Participation (Forums and Supervised Activities)	10%
S2 Individual / Group Assignments	30%
S4 Final Exam (On-Site)	60%

Extraordinary Session

Modality: In-Person

Evaluation Criteria	Percentage
S2 Individual / Group Assignments	30%
S4 Final Exam (On-Site)	70%

Modality: Online

Evaluation Criteria	Percentage
S2 Individual / Group Assignments	30%
S4 Final Exam (On-Site)	70%

3.3. Restrictions

Minimum Grade

To be able to qualify for inclusion of the above evaluation criteria percentages in the calculation of the final grade, it is necessary to obtain at least a grade of 5.0 in the final test.

Attendance

Student who have missed more than 25% class meetings (unexcused) may be denied the right to take the final exam in the ordinary session.

Writing Standards

Special attention will be given to written assignments, as well as to exams, regarding both presentation and content in terms of grammatical and spelling aspects. Failure to meet the minimum acceptable standards may result in point deduction.

3.4. Plagiarism Warning

Nebrija University will not tolerate plagiarism under any circumstances. Reproducing content from sources other than a student's own work (the internet, books, articles, and peers' work, among others) without proper citation will be considered plagiarism.

If these practices are detected, they will be considered a serious offense, and the sanctions provided for in the Student Regulations may be applied.

4. BIBLIOGRAPHY

Required Reading

Stock, J. H., & Watson, M. W. (2020). *Introduction to Econometrics*. Fourth Edition. Global Edition. Pearson.

Recommended Reading

Brooks, C. (2019). *Introductory Econometrics for Finance*. Cambridge University Press.

Griffiths, W. E., Hill, R. C., & Lim, G. C. (2012). *Using EViews for Principles of Econometrics*. John Wiley & Sons, Inc.

Heij, C.; De Boer, P.; Hans Franses, P.; Kloek, T. y H.K. Van Dijk (2004). *Econometric Methods with Applications in Business and Economics*, Oxford University Press.

Heiss, F. (2020). *Using R for Introductory Econometrics*. CreateSpace Independent Publishing Platform.

Hill, R. C., Griffiths, W. E., & Lim, G. C. (2018). *Principles of Econometrics*. John Wiley & Sons.

Wooldridge, J. M. (2019). *Introductory Econometrics: a Modern Approach*. Seventh Edition. South-Western. Cengage.

Software:

- Eviews
- Gretl. <https://gretl.sourceforge.net/>
- Microsoft Excel + Real Statistics using Excel
- R. <https://www.r-project.org/>
- Stata