Universidad de Navarra

Econometrics I (MEF)

Guía docente 2026-27

PRESENTATION

This is a course of Basic and Advanced Econometrics. The course is divided in four sections. Starting from the simple linear regression model, the first section deals with Basic Econometrics, including estimation and testing based on likelihood methods. Section 2 is devoted to Asymptotic Theory. Section 3 is Advanced Econometrics, explaining concepts like non-linear regression models, while Section 4 focuses on Basic and Advanced Time Series Analysis including both time and frequency domain approaches.

GENERAL INFORMATION

· Degree: Master in Economics and Finance

· Module/Subject: Mandatory/ Quantitative Analysis

· ECTS: 3.5 (87.5 hours of work, approximately)

· Year, Semester: 1, Fall Semester

· Professor: Prof. Luis Alberiko Gil-Alana (alana@unav.es)

· Language: English

· Schedule: TBD

· Office Hours: Contact the instructors by email for an appointment.

COMPETENCIES

CG1) To understand the basic econometric concepts like linear regression models, estimation and testing.

CG2) To provide the fundamentals of asymptotic theory, including concepts such as the Law of Large Numbers, Central Limit Theorem, the different types of convergence, asymptotic unbiasedness and limit distributions.

CG3) To understand the basic econometric concepts of Advanced Econmetrics including nonlinear regression models.

CE4) To provide the basic notions of time series in the frequency domain, including concepts like the spectrum, the spectral denstity function, the periodogram and other issues.

PROGRAM

PART I:

1. Linear model

2. OLS estimation and partitioned matrices

3. Statistical properties of OLS

4. Hypothesis testing

5. Testing of multiple linear hypothesis based on fit

6. Examples of F-tests and t-tests

7. Likelihood based tests

8. Omission relevant variables; inclusion irrelevant variables; and model selection

9. Data problems

PART II:

10. Asymptotic theory I

11. Asymptotic theory II

PART III:

12. Errors in variables and Heteroskedasticity

13. Nonlinear regression models & Asymptotic properties of nonlinear least squares estimation

14. Generalized Method of Moments

PART IV:

15. Stationary time series

16. Spectral analysis

17. Nonstationary time series

18. Fractional integration and cointegration

19. Structural breaks and other extensions in time series analsyis

20. Applications in macroeconomics and finance

FORMATIVE ACTIVITIES

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Problem-sets and face-to-face classes.

Theoretical lectures: 30 hours

Attendance of seminars: 30 hours

Personal work: 300 hours

Tutorials: 10 hours

EVALUATION CRITERIA

Final Exam (100%)

Convocatoria Extraordinaria: Final Exam (100%)

Class attendance and participation will help in the final score.

Make-up call (in case the student fails the class)

If a student fail the class, he/she will have a second examination (100%).

OFFICE HOURS

Prof. Luis Alberiko Gil-Alana (alana@unav.es)

Location: Ed. Amigos, 2500, Second Floor (Tower)

Schedule: by appointment

BIBLIOGRAPHY

· Own notes from Prof. Luis A. Gil-Alana

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RESULTADOS DE APRENDIZAJE (Competencias)

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ACTIVIDADES FORMATIVAS

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EVALUACIÓN

CONVOCATORIA ORDINARIA

Final exam: 100%

CONVOCATORIA EXTRAORDINARIA

Final exam: 100%

HORARIOS DE ATENCIÓN

Dra. alana@unav.es)

ONline at any time

BIBLIOGRAFÍA

Universidad de Navarra

Peter Robinson's notes from LSE

Own note from Prof. Luis Alberiko Gil-Alana