



Asignatura: **ECONOMETRICS I**  
Código: **18271**  
Centro: **Facultad de Ciencias Económicas y Empresariales**  
Titulación: **Economía y Finanzas**  
Nivel: **Grado**  
Tipo: **Obligatory**  
Nº. de Créditos: **6**

## ASIGNATURA / COURSE TITLE

[Econometrics I](#)

### 1.1. Código / Course number

18271

### 1.2. Materia/ Content area

Econometrics

### 1.3. Tipo /Course type

Obligatory

### 1.4. Nivel / Course level

[Bachelor's Degree](#)

### 1.5. Curso / Year

3º

### 1.6. Semestre / Semester

1º

### 1.7. Número de créditos / Credit allotment

6 ECTS

### 1.8. Requisitos previos / Prerequisites

Previous knowledge of fundamentals in probability theory and inference learned in statistical courses in the program. In the area of finance, it is assumed that the student has knowledge of the fundamentals of corporate finance, financial markets and investment. The course is taught in English.



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### 1.9. Requisitos mínimos de asistencia a las sesiones presenciales/ **Minimum attendance requirement**

Minimum attendance is not required, but it is strongly encouraged. Continuous evaluation will be counted up to 30% into the final course grade.

### 1.10. Datos del equipo docente / **Faculty data**

The faculty is composed of professors from the following department:

**Departamento de Análisis Económico: Economía Cuantitativa. UDI de Econometría**

Módulo E-3

Facultad de Ciencias Económicas y Empresariales

C/ Francisco Tomás y Valiente, 5

Universidad Autónoma de Madrid

28049 Madrid

Secretaría: Despacho E-3-304

Tel.: (+34) 91 497 4813

Fax: (+34) 91 497 2991

The professors in charge of teaching each subject can be seen in each academic course schedule, which is available at the web page:

[http://www.uam.es/ss/Satellite/Economicas/es/1242654732921/contenidoFinal/Grado\\_en\\_Economia\\_y\\_Finanzas\\_%28bilingue%29.htm](http://www.uam.es/ss/Satellite/Economicas/es/1242654732921/contenidoFinal/Grado_en_Economia_y_Finanzas_%28bilingue%29.htm)

### 1.11. Objetivos del curso / **Course objectives**

Introduction to basic econometric models applied for economic and financial analysis both for macro as well as for micro analysis. At the end of the course, the student should have achieved several skills related to: data analysis, econometric modeling taking into account the nature (micro/macro) of the problem at hand, interpretation of econometrics results. Forecasting with financial data will also be discussed. Throughout the course, all empirical applications shall be related to real financial examples using, basically, Eviews or Gretl. Detailed analysis and explanations of the software commands will be provided so that students will be able to reproduce the analysis by replicating the empirical works and executing a project in empirical finance.



## 1.12. Contenidos del programa / **Course contents**

### 1. Introduction

- 1.1 What is econometrics and financial econometrics
- 1.2 Types of data
- 1.3 Returns in financial modeling
- 1.4 Steps involved in formulating an econometric model
- 1.5 Econometric packages for modeling financial data
- 1.6 How to read articles in empirical finance

### 2. Overview of the classical linear regression model

- 2.1 What is a regression model? Regression versus correlation
- 2.2 Simple regression, further terminology
- 2.3 The assumptions underlying the linear regression model
- 2.4 Properties of the OLS estimators
- 2.5 An introduction to statistical inference: precision and standard errors
- 2.6 A special type of hypothesis test: the t-ratio
- 2.7 Empirical examples: US mutual funds, UK stock market, hedging revisited
- 2.8 Estimation and hypothesis testing in Eviews - example: the CAPM.

### 3. Further developments and analysis of the classical linear regression models

- 3.1 Generalising the simple model to multiple linear regression (MLR)
- 3.2 Estimation of the MLR
- 3.3 Testing multiple hypothesis: the F-test
- 3.4 Sample Eviews output for multiple hypothesis tests
- 3.5 Data mining and the true size of the test
- 3.6 Goodness of fit statistics
- 3.7 Hedonic pricing models
- 3.8 Tests of non-nested hypothesis

### 4. Classical linear regression model assumptions and diagnostic tests

- 4.1 Statistical distributions for diagnostic tests
- 4.2 Assumption 1:  $E(u_t) = 0$
- 4.3 Assumption 2:  $var(u_t) = \sigma^2 < \infty$
- 4.4 Assumption 3:  $cov(u_i, u_j) = 0$  for  $i \neq j$
- 4.5 Assumption 4: the  $x_i$  are nonstochastic
- 4.6 Assumption 5: the disturbances are normally distributed
- 4.7 Multicollinearity



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- 4.8 Adopting the wrong functional form
  - 4.9 Omission of an important variable
  - 4.10 Inclusion of an irrelevant variable
  - 4.11 Parameter stability tests
  - 4.12 A strategy for constructing econometric models and a discussion of model-building philosophies
  - 4.13 Determinants of sovereign credit ratings
- 5. Further topics in regression analysis.**

### 1.13. Referencias de consulta / **Course bibliography**

Brooks, C. (2008). “Introductory Econometrics for Finance” (2 ed). Cambridge, Cambridge Univ. Press.

Stock, J. H. and Watson, M. (2012). “Introduction to Econometrics” (3 ed). Pearson International Edition.

Wooldridge, J. M. (2003). “Introductory Econometrics. A modern approach”. Thompson.

Ashley, R. A. (2012). “Fundamentals of Applied Econometrics”. Wiley

## 2. Métodos Docentes / **Teaching methodology**

Different topics in the syllabus will be developed in two weekly 90 minutes sessions of formal teaching where both theoretical and practical applications will be addressed. During these sessions some control exams will help students to check their understanding of the items explained in the class room. Additionally, there is a tutorial program that students can use individually to consult their questions.



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### 3. Tiempo de trabajo del estudiante / **Student workload**

This is 6 ECTS course implying 150 work hours for the student. The different activities for students can be summarized in the following table:

ACTIVITIES	HOURS
Theoretical classes	28 hours
Practical and empirical classes	14 hours
Tutorials	2 hours
Complementary activities	4 hours
Final Exam	2.5 hours
TOTAL A.P.	50.5 hours
OTHER ACTIVITIES	HOURS
Problems and home works solving	41.5 hours
Weekly study and exam preparation	58 hours
TOTAL A. NP.	99.5 hours
<b>TOTAL</b>	<b>150 hours</b>

### 4. Métodos de evaluación y porcentaje en la calificación final / **Evaluation procedures and weight of components in the final grade**

The grade is based on the following criteria:

- Final exam. The grade in the final examen must be greater or equal than 4 points (out of 10) to take into account the marks obtained from the continuous assessment.
- Continuous assessment. It accounts for up to 30% of the final grade. The teacher will inform about the activities to be done along the course, as well as their evaluation.

The final grade in both the ordinary and extraordinary evaluations will be the maximum between the following two options:

- The grade in the final exam.
- The result of weighting the grade in the continuous assessment (30%) and the grade in the final exam (70%).



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If the student does not take the final exam, the final grade will be No evaluated. These criteria are also applicable to students who are taking the course for the second time.

## 5. Cronograma\* / **Course calendar**

The teaching activities will cover 14 weeks according to the following schedule

Weeks	Contents
1	Introduction
2 to 3	Overview (T.2)
4 to 6	Further..(T.3)
7 to 10	Classical.. (T.4)
11 to 14	UTS (T.5)

\*The Schedule is orientative