Asignatura: **ECONOMETRICS I**
Código: **18271**
Centro: **Facultad de Ciencias Económicas y Empresariales**
Titulación: **Economía y Finanzas**
Nivel: **Grado**
Tipo: **Obligatory**
Nº. de Créditos: **6**
Curso Académico: **2012 - 2013**

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

Grado/ 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.

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 30% into your final course grade

1.10. Datos del equipo docente / Faculty data

Alvarez Espinosa, M. Angel	miguelangel.alvarez@uam.es	E-III-310
García Ferrer, Antonio	antonio.garcia@uam.es	E-III-305
Del Hoyo Bernat, Juan	juan.hoyo@uam.es	E-III-303
De Juan Fernández, Aránzazu	aranzazu.dejuan@uam.es	E-III-306
Martín Arroyo, Antonio S.	a.martin@uam.es	E-III-306
Poncela Blanco, Pilar	pilar.poncela@uam.es	E-III-301-A
Rodriguez Puerta, Julio	jr.puerta@uam.es	E-III-309
Sánchez Mangas, Rocío	rocio.sanchez@uam.es	E-III-301-B

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 2: 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
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. Univariate time series modeling and forecasting

5.1 Introduction, notation and concepts

5.2 Moving average (MA) processes
5.3 Autoregressive processes
5.4 The autocorrelation (acf) and partial autocorrelation (pacf) functions
5.5 ARMA processes
5.6 Building ARMA models: the Box-Jenkins approach
5.7 Constructing ARMA models in Eviews
5.8 Examples of financial time series in finance
5.9 Exponential smoothing
5.10 Forecasting with ARMA and exponential smoothing models using Eviews

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.

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
TOTAL	**150 hours**

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

Students are required to complete a final exam (70%). Attendance is very important for this class and is strongly encouraged. Continuous evaluation will be counted 30% into your final course grade, which will include homework assignments and applications of the methods that you have learned in the course.

3. 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