

## 27522 - Econometric Analysis

### Syllabus Information

**Academic year:** 2023/24

**Subject:** 27522 - Econometric Analysis

**Faculty / School:** 109 - Facultad de Economía y Empresa

**Degree:** 449 - Degree in Finance and Accounting

**ECTS:** 6.0

**Year:** 3

**Semester:** First semester

**Subject type:** Compulsory

**Module:**

### 1. General information

The main goal of this subject is to introduce the student to the use of econometric models at so that, at the end of the course, he/she will have the necessary fluency to design and solve an applied research project. The orientation of the course is of a practical nature. This will be done using models, case studies and real data taken from the field of finance.

These approaches and goals are aligned with the Sustainable Development Goals (SDGs) of the 2030 Agenda of the United Nations (<https://www.un.org/sustainabledevelopment/es/>), specifically, the activities planned in the subject will contribute to the achievement of goals 4, 5, 8 and 12.

### 2. Learning results

**Upon passing the subject the student is expected to be able to:**

- Integrate knowledge of economic theory, the problems presented by economic-financial data and the appropriate techniques for their treatment.
- To understand the basic concepts and objectives of financial econometrics and its usefulness in decision making.
- Discriminate between the different types of data most commonly used in economic and financial analysis applications.
- Identify the elements involved in an econometric model.
- Understand and appreciate the econometric methodology and distinguish between its different stages: specification, estimation, verification and exploitation.
- Understand and describe the specific characteristics of financial economic series and to know the specific techniques for their analysis.
- To know and value the concepts of seasonality and stationarity in a time series context.
- To know and apply the Box-Jenkins methodology for time series analysis.
- Understanding and modeling volatility in financial markets.
- Interpret econometric models.
- Handle some of the most common computer tools in this field.

### 3. Syllabus

#### **UNIT 1. Econometrics and financial econometrics**

- 1.1 Definitions of Econometrics.
- 1.2 Data types.
- 1.3 Financial Data and Econometrics for Finance.
- 1.4 Econometric models.

#### **UNIT 2. The classical linear regression model**

- 2.1 Specification.
- 2.2 Estimate.
- 2.3 Diagnosis.
- 2.4 Prediction.

#### **UNIT 3. Introduction to univariate time series models**

- 3.1 Non-parametric approach.
- 3.2 Parametric approach. ARMA and ARIMA models.

#### **UNIT 4. ARIMA models. Box-Jenkins approach**

4.1 Identification and estimation.

4.2 Diagnosis.

4.3 Prediction.

#### **UNIT 5. Volatility and risk measures**

5.1 Motivation.

5.2 Volatility indicators. Value-at-Risk models.

5.3 Volatility modeling: ARCH and GARCH models.

#### **4. Academic activities**

The subject is assigned 150 hours (6 ECTS) distributed in:

**Master classes:** 30 hours

The theoretical content will be presented in the form of a participative lecture.

**Practical classes:** 30 hours

Problem practice in the conventional classroom and computer practice in the computer classroom.

**Personal Study:** 84 hours

**Tests Assessment:** 6 hours

In principle, the teaching methodology and its evaluation is planned to be based on face-to-face classes . However, if circumstances so require, they may be carried out online.

#### **5. Assessment system**

The subject will be evaluated by continuous evaluation or global evaluation during the first call and by global evaluation during the second call.

**Continuous assessment:** consists of two tests: first test with a weight on the final grade of 60% that will examine the contents of Topics 1 to 3; and a second test on Topics 4 to 5 that will have a weight of 40% remaining. Each of these tests is in turn divided into two other tests: a theoretical-practical written test and a computer test . Given the applied nature of the course, the computer tests will have a 60% weighting.

The first continuous assessment test will take place at the end of Topic 3. The second continuous evaluation test will be given after the end of topic 5 at . Both tests will take place during class hours or on the days specifically designated by the center for continuous evaluation tests.

The requirement to pass the subject by this route is to obtain a minimum of 3 out of 10 in all written and computer tests, as well as to obtain a grade averaged according to the weights previously described equal to or higher than 5 in the final grade on a scale of 0 to 10.

The student who does not pass the course by continuous evaluation or who would like to improve his grade must take the global evaluation with the whole program of the subject.

**Global assessment:** It consists of two tests: a written test and a computer test. The computer test will have a weighting of 60% and the written test the remaining 40%. It will be carried out according to the official calls published by the center in the examination calendar. The requirement to pass the subject by this method is to obtain a minimum of 3 in both the written test and the computer test and a grade equal to or higher than 5 in the final grade on a scale of 0 to 10.

**Assessment Criteria:** In all the tests, the appropriateness of the language, the accuracy and completeness of the answers, as well as the expository ability of the student will be assessed.