COURSE DESCRIPTION

STATISTICS I

1ST YEAR | 2ND SEMESTER

DEGREE: DEGREE IN ECONOMICS

IN-CLASS TEACHING

ACADEMIC YEAR: 2019/2020

SCHOOL OF BUSINESS AND ECONOMICS
## 1. COURSE IDENTIFICATION

### 1.- COURSE:

<table>
<thead>
<tr>
<th>Name: Statistics I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code: f109</td>
</tr>
<tr>
<td>Year (s) course is taught: First year</td>
</tr>
<tr>
<td>Semester (s) when the course is taught: Second</td>
</tr>
<tr>
<td>Type: Compulsory</td>
</tr>
<tr>
<td>ECTS: 6</td>
</tr>
<tr>
<td>Hours ECTS: 30</td>
</tr>
<tr>
<td>Language: English and Spanish</td>
</tr>
<tr>
<td>In-class teaching</td>
</tr>
<tr>
<td>Degree (s) in which the course is taught: Economics (Minor in Finance) and Economics (Minor in International Business)</td>
</tr>
<tr>
<td>School of Business and Economics</td>
</tr>
</tbody>
</table>

### 2.- ORGANIZATION OF THE COURSE:

- **Department:** Applied Mathematics and Statistics
- **Area of knowledge:** Statistics and Operations Research

## 2. LECTURERS OF THE COURSE

### 1.-LECTURERS:

<table>
<thead>
<tr>
<th>Instructor in charge</th>
<th>CONTACT DETAILS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
<td></td>
</tr>
<tr>
<td>Phone (ext):</td>
<td></td>
</tr>
<tr>
<td>Email:</td>
<td></td>
</tr>
<tr>
<td>Office:</td>
<td></td>
</tr>
</tbody>
</table>

- **Contact Details:**
  - Aguirre Arrabal, Cristina
  - Tfno.: 914566300 Ext.: 15361
  - Email: aguiarr@ceu.es
  - Office: JRB 0.05

- **Coordinator/Lecturer**
  - Name: Martínez Santos, Fernando
  - Tfno.: 914566300 Ext.: 15539
  - Email: fernando.martinezsan@ceu.es
  - Office: JRB 0.03

- **Lecturer**
  - Name: Córdoba Bueno, Miguel
  - Tfno.: 914566300 Ext.: 15358
  - Email: corbue@ceu.es
  - Office: JRB 0.04

- **Lecturer**
  - Name: Ferrer Pérez, Hugo

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2.- TUTORIALS:
For any queries students can contact lecturers by e-mail, phone or visiting their office during the teacher’s tutorial times published on the students’ Virtual Campus.

3. COURSE DESCRIPTION

The student should be able to apply the key mathematical tools used in making economic and business decisions. In order to achieve this aim, the student should acquire mathematical skills at topics such as: modelling of economic processes, application of matrix analysis, resolution of linear equations systems, the study of derivation of economic functions in one and several real variables.

4. SKILLS

1.- SKILLS

<table>
<thead>
<tr>
<th>Code</th>
<th>Basic and General Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS1</td>
<td>Students should have demonstrated that they have gained knowledge of and understand an area of study at a level beyond secondary education that, even though based on advanced text books, it also includes aspects that are acquired from knowledge deriving from the state-of-the-art of the field of study.</td>
</tr>
<tr>
<td>BS2</td>
<td>Students should know how to apply their knowledge to their work or vocation in a professional manner and should have the skills that are usually demonstrated by compiling and defending arguments and resolving problems within their area of study.</td>
</tr>
<tr>
<td>BS3</td>
<td>Students should have the capacity to collect and interpret relevant data (usually within their area of study) to form opinions based on reflection on relevant topics of a social, scientific or ethical nature.</td>
</tr>
<tr>
<td>GS1</td>
<td>Capacity for analytical and critical thinking and its oral and written communication.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Specific Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS2</td>
<td>Understanding the fundamentals of the models provided by economic theory for the analysis of economic problems.</td>
</tr>
<tr>
<td>SS4</td>
<td>Understanding the past of mankind for a better awareness of the present, thereby gaining insight into the main events and processes of change and continuity of mankind from a diachronic perspective.</td>
</tr>
</tbody>
</table>

2.- LEARNING OUTCOMES:

<table>
<thead>
<tr>
<th>Learning outcomes</th>
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</thead>
<tbody>
<tr>
<td>Apply the mathematic tools when solving economic and business problems.</td>
</tr>
</tbody>
</table>

5. EDUCATIONAL ACTIVITIES

1.- DISTRIBUTION OF STUDENTS’ ASSIGNMENT:
Total hours of the course | 180
---|---
Code | Name | On-campus hours
EA2 | Seminar | 30
EA3 | Workshop | 25
EA4 | Tutorial | 5
TOTAL Hours | | 65

Code | Name | Not on-campus hours
EA6 | Independent Work | 115

2.- EDUCATIONAL ACTIVITIES:

<table>
<thead>
<tr>
<th>Educational Activity</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA2-Seminar</td>
<td>In-class seminar educational activity which, under the guidance of the professor, encourages collaborative learning among students and is focused on case studies and the subject matter to be studied in detail.</td>
</tr>
<tr>
<td>EA3-Workshop</td>
<td>In-class educational activity in the form of workshops or undertaken in the computer room which, under the guidance of the professor, is directed at either the individual or group resolution of exercises and problems or the undertaking of practice that demonstrate an understanding of the theory studied.</td>
</tr>
<tr>
<td>EA4-Practice</td>
<td>Out-of-class educational activity that encourages independent learning with the support, guidance and follow-up of a tutor.</td>
</tr>
<tr>
<td>EA6-Individual Work</td>
<td>Out-of-class educational activity which, under the systematic guidance of the professor/tutor, encourages independent learning on the part of the student and the integration of the skills and outcomes acquired by virtue of the degree studies.</td>
</tr>
</tbody>
</table>

6. ASSESSMENT OF LEARNING

1.- CLASS ATTENDANCE:

- In order to be eligible for examination by continuous assessment students must attend at least 75% of scheduled class time (attendance sheets will be used). As students may be absent 25% of the classes, no attenuating circumstances will be accepted for absences.

2.- ASSESSMENT SYSTEM AND CRITERIA:

<table>
<thead>
<tr>
<th>ASSESSMENT SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
</tr>
<tr>
<td>AS3</td>
</tr>
</tbody>
</table>
ORDINARY EVALUATION

The student assessment will be done based on
1. Two exams: with exercises, tests and reasoning questions for the evaluation of the acquired knowledge. Scheduled tests: 20% each.
2. Individual work consisting on the elaboration of an economic report with data from different statistical sources applying the knowledge acquired in the subject (10%).
3. Final test: compulsory exam, written, with exercises, tests and reasoning questions to evaluate the acquired knowledge in the semester (50%).

Assistance is not evaluated, however a minimum assistance of a 75% is required and a minimum grade of 3 out of 10 in the final ordinary exam and the individual work for being eligible for the continuous assessment.

EXTRAORDINARY EVALUATION

Students not passing the subject in the ordinary evaluation will be called to participate in the final exam of the extraordinary evaluation, consisting on two parts:
1. First part: written exam with exercises, tests and reasoning questions for the evaluation of the acquired knowledge (90%)
2. Second part: individual work consisting on the elaboration of an economic report with data from different statistical sources applying the knowledge acquired in the subject (10%). If the student passes the individual work during the semester, there will be no need to repeat it.

7. COURSE SYLLABUS

1.- COURSE SYLLABUS:

THEORETICAL:

PART I: UNIVARIATE DESCRIPTIVE STATISTICS

UNIT 1. STATISTICS AND ECONOMICS
An introduction to Descriptive statistics
The role of Statistics in Economic Research

UNIT 2. MEASURES OF DISPERSION

UNIT 3. INDEX NUMBERS
The idea of index number; types
Main properties of index numbers.
Change of base period.

UNIT 4. RATES OF CHANGE
Main concepts.
Types of rates.

PART II: BIVARIATE DESCRIPTIVE STATISTICS

UNIT 5. BIVARIATE DISTRIBUTIONS
Frequencies, tables, graphical representations.
Independence.

UNIT 6. REGRESSION AND LIENAR CORRELATION
Main concepts.
UNIT 7. ATTRIBUTE STATISTICS
Association.
Correlation.
Contingency tables.

PART III: ECONOMIC TIME SERIES ANALYSIS

UNIT 8. INTRODUCTION TO TIME SERIES
Concepts.
Main components of a time series.
Trend and seasonal analysis.

PRACTICAL:

After completion of each theoretical block, a series of practical exercises will be carried out. The teacher shall solve some exercises with the participation of the students. The students must solve some problems given as homework, and hand them back to the teacher. Such homework, as well as other complementary and support documentation, will be available in the Students Portal.

8. BIBLIOGRAPHY

1.- BASIC BIBLIOGRAPHY:

Essentials of modern business statistics with Microsoft, Thomson

CARLBERG, C. (2011):
Statistical analysis: Microsoft Excel 2010, Pearson

KELLER, G. (2014):
Statistics for Management and Economics, Cengage Learning

QUIRK, T. (2011):
Excel 2010 for Business Statistics, Springer

WAGNER, T. (2013):
Applied business statistics, methods and Excel-based applications, Junta Academic

2.- ADDITIONAL BIBLIOGRAPHY:


HERNÁNDEZ, A. (2008):


3. **WEB RESOURCES**: 

Instituto Nacional de Estadística: www.ine.es  
Comunidad de Madrid: www.madrid.org  
Eurostat: epp.eurostat.ec.europa.eu  
Base de Datos con información económica y financiera de empresas SABI

9. **ATTITUDE IN THE CLASSROOM**

1. **REGULATIONS**

Any irregular act of academic integrity (no reference to cited sources, plagiarism of work or inappropriate use of prohibited information during examinations) or signing the attendance sheet for fellow students not present in class will result in the student not being eligible for continuous assessment and possibly being penalized according to the University regulations.

The teaching unit will decide, in each case, the sanction that will be applied to those students who are expelled from the classroom.