

## COURSE GUIDE 2017-18

DETAILS OF THE COURSE			
Name:	Statistics		
Code:	63101103	Plan:	Grade in Economy
Year:	2017-18	Level:	Grade
Course:	1	Type:	Compulsary
Semester:	2nd Semester		
TIMING			
ECTS credits:		6	
Total Hours:		150	
ONLINE LEARNING :		Teaching support	

LECTURER			
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CONTEXT
Main objective of the course
The main issue of this subject is that students acquire the competitive advantage of being comfortable and competent around data and uncertainty. Statistical analysis helps extract information from a vast amount of information. Probability helps understand risky and random events, providing a way of evaluating the likelihood of various potential outcomes.
Previous knowledge
Some basic knowledge of the subject Maths of 1st semester is needed (limit and continuity, derivatives and basic integral calculation)
Prior conditions
None

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## COMPETENCIES AND OBJECTIVES

### General

#### *UAL transverse competencies*

- Basic knowledge of the profession
- Problem solving skills

#### *Basic competencies*

- Having and understanding knowledge.

### Competencias Específicas desarrolladas

- **FBC05:** Knowing and applying the basic concepts of Statistics.
- **FBC12:** Acquiring skills and master computer tools applied to Statistics.

## LEARNING OUTCOMES

-UAL1: Knowledge, skills and attitudes which facilitate understanding of new theories, interpretations, methods and techniques within different curricular fields, leading to meet the professional requirements.

-UAL3: The ability to identify, analyse and define the main parts of a problem in order to solve it rigorously

-RD1: The student must show knowledge and understanding in a field of knowledge that starts from secondary education, but is in a higher level, supported by advanced text books, and includes some knowledge from the vanguard of the field.

-FBC05: Knowing and understanding of numerical summary measures, probability concepts and probability distributions. Analysing statistically a set of data, interpreting the results and drawing conclusions.

-FBC12: Knowing and operating with ease the computer programs for statistical and mathematical analysis.

## CONTENTS

### Syllabus

#### PART I: DESCRIPTIVE STATISTICS

- UNIT 1: DATA ANALYSIS WITH ONE VARIABLE.
  - 1.1. Frequency tables and graphs.
  - 1.2. Numerical summary measures.
- UNIT 2: DATA ANALYSIS WITH TWO VARIABLES.
  - 2.1. Scatterplots and correlation.
  - 2.2. Linear regression.
  - 2.3. Nonlinear relationship.

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## **PART II: INDEX NUMBERS**

- UNIT 3: INDEX NUMBERS.
  - 3.1. Interpretation of an index number.
  - 3.2. Changing the base year.
  - 3.3. To chain indices.
  - 3.3. Weighted indices.
  - 3.4. Using a Price Index to deflatate.
  - 3.5. Consumer Price Index (CPI).

## **PART III: PROBABILITY**

- UNIT 4: PROBABILITY.
  - 4.1. Definition of Probability and laws.
  - 4.2. Probability rules: compound events.
  - 4.3. Conditional probability. Independent events.
  - 4.4. Total Probability Rule and Bayes' Theorem.
- UNIT 5: DISCRETE RANDOM VARIABLES AND IMPORTANT DISTRIBUTIONS.
  - 5.1. Discrete random variables.
  - 5.2. Probability distributions.
  - 5.3. Expected value and variance for discrete random variables.
  - 5.4. Binomial distribution.
  - 5.5. Hypergeometric distribution.
  - 5.6. Poisson distribution
- UNIT 6: IMPORTANT DISTRIBUTIONS.
  - 6.1. Continuous random variables.
  - 6.2. Uniform distribution.
  - 6.3. Exponential distribution.
  - 6.4. Normal distribution.

### **Methodology and activities**

- Lectures.
- Solving exercises
- Practical lessons with a statistical software.
- Case Studies.
- Group work.

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## Teaching Innovation Activities

- Case Studies: a poster session

## EVALUATION OF THE COMPETENCIES

### Criteria

The total mark of the subject is 10 points, divided in this way:

1. A maximum of **seven points (70%)** can be obtained in the evaluation of one theoretical-practical test. In this exam we will measure the clarity in the concept understanding, the correct use of the statistical vocabulary and notation and the statistical reasoning skill as well as the correct interpretation of the numerical outcomes. A **MINIMUM MARK OF 3 POINTS** is required in this exam in order to pass the subject. (Evaluation of competencies: RD1, UAL1, UAL3, and FBC05).

2. A maximum of **three points (30%)** can be obtained in the evaluation of the activities proposed during the semester:

- 1.5 points can be obtained by group work. The members of the group have to search for a data set, analyse it using the methods explained in PART I and prepare a poster which will be defended in a poster session in front an evaluation committee.
- 1 point can be obtained in the evaluation of several theoretical online tests that will be proposed during the semester. The final mark will be the proportion of total correct answers.
- 0.5 points can be obtained by solving and defending one of the “challenge” proposed in the theoretical classes.

The marks of continuous assessment obtained during the course, will be maintained for the extraordinary exam in September and only can be obtained if the assignments are submitted in time. Students neither can retake this part nor ask for its assessment in September call. (Evaluation of competencies: RD1, UAL1, UAL3, FBC05 and FBC12).

The final mark will be the sum of the written exam mark and the continuous assessment, as long as the student get the minimum mark of 3 points in the written exam. Otherwise, the final mark will be the mark got in the written exam.

**A minimum final mark of five points is required to pass the subject.**

### Follow up

- On-line platform sign up and access.
- Handing in activities in class.
- Handing in test through on-line platform.

## BIBLIOGRAPHY OF THE COURSE

### Recommended Reading

- Practical Business Statistics -6th edition (Andrew F. Siegel)
- SPSS Statistics 19 Guide to Data Analysis - With CD (Marija Norusis)
- Statistics for business and financial economics (Cheng F. Lee, John C. Lee y Alice C. Lee)

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**WEB ADDRESSES:**

- <http://ec.europa.eu/eurostat> *Eurostat (European statistics)*
- <http://www.ecb.europa.eu/stats/html/index.en.html> *(European Central Bank)*
- <http://www.imf.org/en/data> *(International Monetary Fund)*
- <http://data.worldbank.org/> *(The World Bank)*
- <http://www.oecd.org/> *(OECD)*
- <http://www.nber.org/data/> *(National Bureau of Economic Research)*
- [http://www.ine.es/en/inebmenu/indice\\_en.htm](http://www.ine.es/en/inebmenu/indice_en.htm) *(Spanish Statistical Office)*
- <http://www.bde.es/bde/en/areas/estadis/> *(Banco de España)*

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