



35009 - STATISTICS I (2018-19)

General

Code: 35009

Lecturer responsible:

MORA LOPEZ, JUAN

Credits ECTS:	6
Theoretical credits:	1,2
Practical credits:	1,2
Distance-base hours:	3,6

Departments involved

- **Dept:** FOUNDATIONS OF ECONOMIC ANALYSIS
Area: FOUNDATIONS OF ECONOMIC ANALYSIS
Theoretical credits: 1,2
Practical credits: 1,2
 This Dept. is responsible for the course.
 This Dept. is responsible for the final mark record.

Study programmes where this course is taught

- DEGREE IN ECONOMICS
 Course type: CORE (Year: 1)

Competencies and objectives

Course context for academic year 2018-19

This is the first course in the sequence "Quantitative Methods: Statistics and Econometrics". The sequence continues in the second and third years.

Course content (verified by ANECA in official undergraduate and Master's degrees)

General Competences (CG)

- **CG1** : Capacity to find and analyse information.
- **CG4** : Apply professional criteria based on the use of technical instruments to analyse problems.
- **CG5** : Capacity to take decisions by applying acquired knowledge to practical situations.
- **CG6** : Obtain important information from the data that is impossible for non-professionals to recognise.
- **CG8** : Analyse problems using critical reasoning, without prejudices, precisely and rigorously.

General Competences acquired at University of Alicante (CGUA)

- **CGUA2** : Use computer, I.T. and communications technology tools as a matter of course in all of one's professional activities.
- **CGUA3** : Capacity for oral and written communication.

Specific Competences (CE)

- **CE1** : Contribute towards the correct management of resource allocation in both the private and public context.
- **CE10** : Capacity to apply the knowledge and skills acquired to solve theoretical and applied economic problems.
- **CE12** : Be able to use the appropriate tools for the analysis, diagnosis and solution of economic questions and problems.
- **CE2** : Identify and anticipate relevant economic problems relating to resource allocation in general, in both the private and public context.
- **CE3** : Bring a rational approach to the analysis and description of any aspect of economic reality.
- **CE4** : Evaluate the consequences of different options for action and select the best one according to the objectives set.
- **CE8** : Identify the sources of relevant economic information and their content.

Exclusive skill taught in this course

No data

Learning outcomes (Training objectives)

- To know and understand how to describe and present economic data (in table and graph form).
- To know how to efficiently summarise the information contained in an economic data set.
- To know and understand the basic principles of exploratory data analysis.
- To demonstrate knowledge of and ability to apply the probability models used in economic analysis.
- To develop the ability to select the appropriate theoretical framework to obtain conclusions from economic data.

Specific objectives stated by the academic staff for academic year 2018-19

Enabling the students to use Excel for descriptive statistical analysis and finding binomial and normal probabilities.

Content and bibliography

Content for academic year 2018-19

Lesson 1: Introduction and Graphical Data Analysis

- 1.1. Why study Statistics?
- 1.2. Classification of variables
- 1.3. Graphs to describe categorical variables
- 1.4. Graphs to describe time series data
- 1.5. Graphs to describe numerical variables
- 1.6. Graphs to describe relationships between variables

Basic Reference: Newbold et al. (2012), Chapter 1

Lesson 2: Numerical Measures for the Description of Data

- 2.1. Measures of central tendency and location
- 2.2. Measures of variability
- 2.3. Weighted mean and measures of grouped data
- 2.4. Changes in units of measurement
- 2.5. Measures of relationships between variables

Basic Reference: Newbold et al. (2012), Chapter 2

Lesson 3: Basic Concepts of Probability Theory

- 3.1. Random experiments, outcomes and events
- 3.2. Probability and its postulates
- 3.3. Probability rules
- 3.4. Bivariate probabilities
- 3.5. Bayes' theorem

Basic Reference: Newbold et al. (2012), Chapter 3

Lesson 4: Discrete Probability Distributions

- 4.1. Random variables: definition and types
- 4.2. Probability distributions for discrete random variables
- 4.3. Expectation and variance of a discrete random variable
- 4.4. Binomial distribution

Basic Reference: Newbold et al. (2012), Sections 4.1-4.4

Lesson 5: Continuous Probability Distributions

- 5.1. Continuous random variables: probability density function and cumulative distribution function
- 5.2. Expectation and variance of a continuous random variable
- 5.3. Uniform distribution
- 5.4. Normal distribution

Basic Reference: Newbold et al. (2012), Sections 5.1-5.3

Lesson 6: Joint Distributions of Random Variables

- 6.1. Joint distribution of discrete random variables
 - 6.2. Joint distribution of continuous random variables
 - 6.3. Independence, covariance and correlation
 - 6.4. Linear combinations of random variables
- Basic Reference: Newbold et al. (2012), Sections 4.7 and 5.6

Assessment

Assessment procedures and criteria 2018-19

GRADING IN JUNE ("Convocatoria Ordinaria", C3): The grade of all students who do not have a grade in any activity will be NOT TAKEN ("NO PRESENTADO"). The rest of the students will get a PASS ("APTO") if the weighted average of their four grades is not lower than 5 and, moreover, the grade on the exam of the Second Part is not lower than 4 (when computing the weighted average, a "NOT TAKEN" grade in any activity will be considered as equivalent to 0). The final grade of a student whose grade is not lower than 4 in the exam of the Second Part will be the weighted average of the four grades; the final grade of a student whose grade is lower than 4 in the exam of the Second Part will be the minimum between 4.5 and the weighted average.

GRADING IN JULY ("Convocatoria Extraordinaria", C4): It is possible to re-take the exam of the First Part (Lessons 1-3) and/or the exam of the Second Part (Lessons 4-6). However, it is not possible to re-take the exam of Descriptive Statistics with Excel, and the grade on attendance and participation of "Convocatoria Ordinaria" will be kept. Students who did not get a PASS in "Convocatoria Ordinaria" can decide whether they want to re-take both the exam of the First Part and the exam of the Second Part, or just one of them. These two retake exams will be taken separately (one for the First Part and another for the Second Part); they will be held on the date that the Faculty indicates for exam of "Convocatoria Extraordinaria C4", and they will be similar to those given in "Convocatoria Ordinaria." The grade of all students who do not take any retake exam will be NOT TAKEN ("NO PRESENTADO"). For the rest of the students, the final grade will be calculated according to the following criteria: a) STUDENTS WHO TAKE BOTH RETAKE EXAMS: If the grade they obtain on the retake exam of the Second Part is not lower than 4, their final grade will be $NR=0.10*NA+0.10*NE+0.35*N1R+0.45*N2R$, where NA and NE are the grades of the student on those fields in "Convocatoria Ordinaria," and N1R, N2R are the grades on the retake exams. If the grade they obtain on the retake exam of the Second Part is lower than 4, their final grade will be the lowest grade among 4.5 and NR, where NR is the weighted average defined in this section (i.e., they will not get a PASS); b) STUDENTS WHO ONLY TAKE THE RETAKE EXAM OF THE SECOND PART: If the grade they obtain on this retake exam is not lower than 4, their final grade will be $NR=0.10*NA+0.10*NE+0.35*N1+0.45*N2R$, where NA, NE and N1 are the grades of the student on those fields in "Convocatoria Ordinaria," and N2R is the grade on the retake exam of the Second Part. If the grade they obtain on the retake exam of the Second Part is lower than 4, their final grade will be the lowest grade among 4.5 and NR, where NR is the weighted average defined in this section (i.e., they will not get a PASS); c) STUDENTS WHO ONLY TAKE THE RETAKE EXAM OF THE FIRST PART: If the grade they obtained on the exam of the Second Part in "Convocatoria Ordinaria" is not lower than 4, their

final grade will be $NR=0.10*NA+0.10*NE+0.35*N1R+0.45*N2$, where NA, NE and N2 are the grades of the student on those fields in "Convocatoria Ordinaria," and N1R is the grade on the retake exam of the First Part. If the grade they obtained on the exam of the Second Part in "Convocatoria Ordinaria" is lower than 4, their final grade will be the lowest grade among 4.5 and NR, where NR is the weighted average defined in this section (i.e., they will not get a PASS).

Description	Criteria	Type	Weighting system
At the beginning of the course, the instructor of each group will tell the students how this item will be assessed in his/her group. The following activities may be considered: attendance to practice sessions, presentations in class, short exams held in class, problems handed in during the course, or similar activities.	ATTENDANCE AND PARTICIPATION	ACTIVITIES OF EVALUATION DURING THE SEMESTER	10

<p>It will be held on week 6, approximately. This is a practical exam about data descriptive analysis using Excel (following the instructions discussed in the practical sessions of the first five weeks).</p>	<p>EXAM OF DESCRIPTIVE STATISTICS WITH EXCEL</p>	<p>ACTIVITIES OF EVALUATION DURING THE SEMESTER</p>	<p>10</p>
<p>It will be held on week 9, approximately. The exam will include practical questions (problems similar to those included in Problem Sets, approximately 80%) and theory questions (approximately 20%).</p>	<p>EXAM OF THE FIRST PART (LESSONS 1, 2 AND 3)</p>	<p>ACTIVITIES OF EVALUATION DURING THE SEMESTER</p>	<p>35</p>

It will be held once the course is completed, on the date that the Faculty indicates for exam of "Convocatoria Ordinaria C3". The exam will include practical questions (problems similar to those included in Problem Sets, approximately 80%) and theory questions (approximately 20%).	EXAM OF THE SECOND PART (LESSONS 4, 5 AND 6)	ACTIVITIES OF EVALUATION DURING THE SEMESTER	45
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Official exam dates for academic year 2018-19

Exam session	Date	Time	Group - Classroom(s) allocated	Comments
(C1) Pruebas extraordinarias de finalización de estudios	01/10/2018			
(C3) Periodo ordinario para asignaturas de segundo semestre y anuales	03/06/2019			
(C4) Pruebas extraordinarias para asignaturas de grado y máster	09/07/2019			

