# Estadística I

**2014/2015**

Code: 102115
ECTS Credits: 6

| Degree | Type | Year | Semester |
|---|---|---|---|
| 2501231 Comptabilitat i Finances | FB | 1 | 2 |
| 2501232 Empresa i Tecnologia | FB | 1 | 2 |

## Contact

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## Use of languages

Principal working language: català (cat)

Some groups entirely in English: Yes

Some groups entirely in Catalan: Yes

Some groups entirely in Spanish: No

## Teachers

Anabel Blasco Moreno

Nestor Garcia Alvarez

David Moriña Soler

## Objectives and Contextualisation

The aim of this course is that students understand and are able to use the basic probabilistic tools that are necessary to address the study of statistical inference. In this sense, the subject is clearly linked, in terms of its immediate application, to the course Statistics II.

However, the skills in probabilistic tools that the student has acquired in this course are also useful in other subjects, such as microeconomics, macroeconomics, econometrics and, in general, those in which random phenomena play an important role.

## Content

Unit 1 Descriptive Statistics

1.1. Univariate frequency distribution tables.

1.2. Measures of central tendency, measures of dispersion and other characteristic measures.

1.3. Histograms and other graphic representations.

1.4. Multivariate frequency distributions. Conditional and marginal frequencies.

1.5. Covariance and correlation coefficient.

1.6. Mean and variance of linear combinations of variables.

1.7. Mean vector and covariance matrix.

Unit 2 Probability theory

2.1. Random events and sample spaces.

2.2. Probability: Axiomatic definition and interpretations.

2.3. Combinatory.

2.4. Probability computation and its properties.

2.5. Conditional probability and stochastic independence.

2.6. Total probability and Bayes Theorems

Unit 3 Discreterandom variables

3.1. Definition of random variable.

3.2. Probability function and distribution function.

3.3. Numeric characteristics: Expectation and Variance.

3.4. Multidimensional random variables.

3.5. Joint and marginal probability functions.

3.6. Conditional probability function and conditional expectation. The concept of independence.

3.7. Covariance and correlation coefficient. Covariance matrix.

3.8. Classical discrete distributions: Bernoulli, Binomial, Poisson.

Unit 4 Continuous random variables

4.1. Density function and distribution function.

4.2. Numeric characteristics: Expectation and variance.

4.3. Joint and marginal density functions.

4.4. Conditional density function and conditional expectation.

4.5. Classical continuous distributions: Uniform, Exponential, Normal, Uniform and Normal multivariate analysis.

4.6. Normal approximation to the Binomial distribution.