

# UAB010:: STATISTICS I

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**INSTITUTION:** Universitat Autònoma de Barcelona (UAB)

**DESCRIPTION:**

The aim of the course, during the first semester, is to introduce the basic concepts of probability and random variables calculation. From this point onwards, students should be able to formulate and solve practical and theoretical problems.

**PREREQUISITES:** None

**LANGUAGE:** English

**CREDITS:** 3

**CONTENTS:**

1. Introduction to descriptive statistics. How to analyze numerical data and how to get synthetic information from numbers.
2. Probability: The concept of random fact or phenomena. Probability concepts. Probability rules. Independent facts. Posterior Probability: Bayes's rule. Counting methods: Permutations and combinations.
3. Discrete random variables and vectors. The concept of continuous and discrete random variables. The concept of independence. Concepts of probability, distribution and density functions. Properties of random variables. Concept of joint probability. Marginal distributions. Correlation and co-variance.
4. Integration. The primitive concept. Concept of the defined integral. Integral properties. Common integration rules.
5. Continuous random variables and vectors. Uniform random variables. Exponential random variables. Normal random variables. Using probability tables. Theorem of the central limit.

**BIBLIOGRAPHY:**

NEWBOLD, P.: *Estadística para los negocios y la economía*, (1997) Ed. Prentice Hall

HOEL, P. y JESSEN, R.: *Estadística básica para los negocios y la economía*, (1993) Editorial Continental

MARTIN-PLIEGO, F.J.: *Introducción a la Estadística Económica y Empresarial: Teoría y Práctica*, (2004) Ed. Thomson

CASAS, J.M. et al: *Problemas de Estadística: Descriptiva, probabilidad e inferencia*, (1998) Editorial Pirámide,

**ASSESSMENT:**

This course requires daily homework and regular, continuous study. Practical exercises included in this course are available at: <http://pareto.uab.es/fsancho>.

The final exam represents the 100% of the final grade and will be based on practical or theoretical exercises.