

**Code: 1738 Probability and Statistics II****Degree:** 2<sup>nd</sup> cycle – Mathematics Applied to Biological Sciences**Curricular Year:** 1<sup>st</sup>**Semester Course:** 2<sup>nd</sup>**Credits:** 6 ECTS**Compulsory****Language:** Portuguese/English**Responsible:** Maria Manuela Costa Neves Figueiredo**Other lecturer(s):** -**Web Site:** <http://www.isa.utl.pt/home/node/3889>**1. Contact hours:****Lecture/Practicals 70 Others 14 Total 84****2. Objectives:**

To improve and expand probabilistic and statistical methodologies .

To learn the fundamental procedures of classical statistical inference and of Bayesian Inference

**3. Programme:**

Random vectors. Joint and conditional distributions. Functions of random variables .

Probability distributions in n-dimensional space. Multivariate Probabilistic Models. The binormal and multinormal distributions. The multinomial distribution.

Limit laws. Stochastic convergences. The delta-method.

Classical Statistical Inference: Estimation Theory and Hypothesis testing. The likelihood-ratio test.

Introduction to Bayesian Statistics.

**4. Bibliography:****Main Bibliography**

Casella, G. e Berger, R. L. (1990). Statistical Inference. Duxbury Press.

Mood, A. M., Graybill, F. A. e Boes, D. C. (1985). Introduction to the theory of Statistics. Mc Graw-Hill

Murteira, B. (1990). Probabilidades e Estatística. Vols. I e II. McGraw-Hill

Neves, M. (2009). Sebenta de Complementos de Probabilidade e Estatística.

Pestana, D. e Velosa, S. (2008). Introdução à Probabilidade e à Estatística. Fundação Calouste Gulbenkian.

Rohatgi, V. K. (1976). An Introduction to Probability Theory and Mathematical Statistics. John Wiley&amp;Sons.

**Other Bibliography**

Bickel, P.J. e Doksum, K. A. (1977). Mathematical Statistics. Basic Ideas and Selected Topics. Holden-Day.

Paulino, C. D., Amaral Turkman, A. e Murteira, B. (2003). Estatística Bayesiana. Fundação Calouste Gulbenkian, Lisboa

**5. Assessment:**

Final exam

**6. Estimated Workload:**

168	Hours
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**7. Last Update:**

15/7/2010
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