

**Code: 1375 Multivariate Statistics****Degree:** 2<sup>nd</sup> cycle – Mathematics Applied to Biological Sciences**Curricular Year:** 1<sup>st</sup>/2<sup>nd</sup>**Semester Course:** 2<sup>nd</sup>/1<sup>st</sup>**Credits:** 6 ECTS**Optional****Language:** Portuguese/English**Responsible:** Jorge Filipe Campinos Landerset Cadima**Other lecturer(s):** -**Web Site:** <http://www.isa.utl.pt/home/node/3892>**1. Contact hours:****Lecture/Practicals 70 Others 14 Total 84****2. Objectives:**

Basics of multivariate data analysis and statistics

**3. Programme:**Some **basic results** in Linear Algebra, Matrix Theory and Probability theory. **Descriptive techniques:** Principal Component Analysis, Linear Discriminant Analysis, Cluster Analysis, Canonical Correlation Analysis, Correspondance Analysis.**Tests and Multivariate inference:** inference on the mean vector and covariance matrix of Multinormal populations. Multiple Analysis of Variance (MANOVA).**4. Bibliography:****Main Bibliography****KRZANOWSKI, W.J. (1988)** *Principles of Multivariate Analysis - A User's Perspective* (Oxford Science Publications).**MARDIA, K.V.; KENT, J.T. AND BIBBY, J.M. (1979)** *Multivariate Analysis* (Academic Press).**MORRISON, D.F. (1990)** *Multivariate Statistical Methods, 3a. ed.* (McGraw-Hill, Statistical Series)**Other Bibliography****ANDERSON, T.W. (2003)** *An Introduction to Multivariate Statistical Analysis.* (John Wiley).**DIGBY, P. AND KEMPTON, R. (1987)** *Multivariate Analysis of Ecological Communities* (Chapman and Hall)**JOLLIFFE, I.T. (2002)** *Principal Component Analysis* (Springer-Verlag, Springer Series in Statistics, 2d ed.)**LEBART, L. ; MORINEAU, A. AND FENELON, J.-P. (1982)** *Traitments des données statistiques* (Dunod).**LEBART, L. ; MORINEAU, A. AND WARWICK, K.M. (1984)** *Multivariate Descriptive Statistical Analysis* (John Wiley)**MUIRHEAD, R. J. (1982)** *Aspects of Multivariate Statistical Theory* (John Wiley & Sons)**5. Assessment:**

Final Exam

6. Estimated Workload:

168

Hours

7. Last Update:

15/7/2010