Code: xxx - e-Planning Methods-Quantitative, Qualitative, Laboratorial
Degree: Curricular Year: (Stream:)
Annual Course [ ] Semester Course: 1st [ ] 2nd [x] Trimester Course: 1st [ ] 2nd [ ] 3rd [ ]
Credits: 6 ECTS Level: Compulsory [ ] Optional [X]
Language: portuguese , but may be taught in english if foreign students enrolled.
Prerequisites: Research Methods – mandatory course (Metodologias de Investigação –curso base)
Lecturer(s): Jaime Raúl Seixas Fonseca, jfonseca@iscsp.utl.pt
Web Site: www.labtec-cs.net

1. Contact hours: 80
Lectures Praticals Lecture/Practicals 40 Laboratory Others OT: 40 Total 80

2. Objectives:

Complement Research Methods,with emphasys on Quantitative Methods

3. Programme:

1. The first steps of the scientific research process, and methodology options
2. Posterior steps of the scientific research process, and respective approaches

(Qualitative, Quantitative, and Mixed)

3. Cluster Analysis
   - 3.1. Objective
   - 3.2. Clustering methods
   - 3.3. Proximity measures
   - 3.4. Dendogram
   - 3.5. The solution
   - 3.6. Validation
   - 3.7. Results discussion
   - 3.8. SPSS applications
4. TwoStep Cluster Analysis
   - 4.1. Objective
   - 4.2. Data considerations
   - 4.3. Distance measures

4.4. AIC and BIC criteria

4.5. Model selection

4.6. Results discussion

4.7. SPSS applications

5. The algorithm K-Means

5.1. Objective

5.2. Data considerations

5.3. Distance measures

5.4. Model selection

5.5. Results discussion

5.6. SPSS applications

6. Latent Segment Models (LSM)

6.1. Introduction

6.2. Objective

6.3. Data considerations

6.4. Advantages from other traditional methods

6.5. Information criteria/Likelihood ratio test

6.6. Model selection

6.7. Segments' characterization

6.8. Results discussion

6.9. LatentGold 4.0 applications

7. Multidimensional Scaling

7.1. Objective

7.2. Data considerations

7.3. Data matrix

7.4. Cases' mapa

7.6. SPSS applications

8. Regressão Linear Multivariada

8.1. Model Adjustment (Stepwise)

8.2. Model analysis

8.3. Forecasting

8.4. Results discussion

8.5. SPSS applications

4. Bibliography:

Main Bibliography

- Dillon, W. R., and Goldstein (1984), M., *Multivariate Analysis, Methods and Applications*, John Wiley & Sons, New York.

- Fonseca, Jaime R.S. (2008), *Mixture Modelling and Information Criteria for Discovering Patterns in Continuous Data*, HIS 2008, 8th International Conference on Hybrid Intelligent Systems, Polytechnic University of Catalonia-UPC, Barcelona, Spain, September 10-12th 2008, Fatos Xhafa, Francisco Herrera, Ajith Abraham, Mario Köppen, and Jose Manuel Bénitez (Ed.), IEEE Computer Society, The Institute of Electrical and Electronic Engineers, Inc.

- Fonseca, Jaime R. S., e Cardoso, Margarida G. M. S. (2007), *Supermaket Customers Segments Stability*, Journal of Targeting, Measurement and Analysis, 15 (4), p. 210-221.

- Fonseca, Jaime R. S. e Cardoso, Margarida G.M.S. (2007), *Mixture-Model Cluster Analysis using Information Theoretical Criteria*, Intelligent Data Analysis, 11 (2), p. 55-173.

- Fonseca, Jaime R.S.; Cardoso, G.M.S., Margarida, *Retail Clients Latent Segments*, Progress in Artificial Intelligence, C. Bento, A. Cardoso, G. Dias (eds). Springer, ISBN: 3-540-30737-0. DOI: 10.1007/11595014_p. 348 - 358

- G. F. McLachlan and D. Peel, *Finite Mixture Models*, John Wiley & Sons, Inc., 2000.

- J. Hair, W. Black, B. Babin, R. Anderson e R. Tatham, *Multivariate Data Analysis*, Pearson Education Inc. (Prentice Hall), New Jersey, 2006.

- Keith F. Punch (2007), *INTRODUCTION TO SOCIAL RESEARCH; Quantitative and Qualitative Approaches*, second edition, Sage publications, London.

- Malhotra, N. K. (1999), *Marketing Research, An Applied Orientation*, Prentice Hall International, Inc.,New Jersey, third edition.

5. Assessment:

6. Estimated Workload:	150	Hours
7. Last Update:	11/2/2011	