

**Code: xxx - e-Planning Methods-Quantitative, Qualitative, Laboratorial**

**Degree:** Curricular Year: (Stream:)

**Annual Course** [ ] **Semester Course:** 1<sup>st</sup> [ ] 2<sup>nd</sup> [x ] **Trimester Course:** 1<sup>st</sup> [ ] 2<sup>nd</sup> [ ] 3<sup>rd</sup> [ ]

**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

**Web Site:**

1. Contact hours: 80

Lectures	Practicals	Lecture/Practicals	40	Laboratory	Others	OT: 40	Total	80
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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
  - 7.5. Results discussion

## 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, 8<sup>th</sup> International Conference on Hybrid Intelligent Systems, Polytechnic University of Catalonia-UPC, Barcelona, Spain, September 10-12<sup>th</sup> 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), *Supermarket 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\_n\_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:

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6. Estimated Workload:	150	Hours
7. Last Update:	10/3/2010	