**COURSE:**

**Marketing Analytics Lab**

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**COURSE BACKGROUND**

This is an applied statistical course that involves hands-on data analysis. The aim is to give the possibility to the students to build a strategy of analysis by using the tools of Supervised and Unsupervised Statistical Learning on real data.

**LEARNING OBJECTIVES**

● provide some understanding of techniques used in Statistical Learning

● appreciate why and when Statistical Learning methods are required

● promote use of useful techniques in your research

● learn a statistical language/software (R)

● understand how to conduct a data analysis and report the main findings

**METHODOLOGY**

The course is a laboratory where the students will work on the analysis of real data sets by applying models and techniques of Supervised and Unsupervised Learning. The analyses will be implemented in R.

**EXAM**

The assessment consists of an individual project assignment. It aims at assessing the capabilities of analysing data, as well as the ability to communicate the relevant findings. The students are expected to produce a technical report no longer than 6 pages.

**CONTENTS**

- Market segmentation

- Pre-segmentation

 - Binary logit model

 - Classification accuracy

 - Multinomial logit model

- Post-segmentation

- Principal component analysis (quantitative, categorical and mixed data)

- Cluster analysis

- Mixture models

**TEACHING MATERIAL**

The course material will be made available during the course: slides, readings, datasets, supplementary materials (scripts in R etc).

**SUGGESTED READINGS**

Bishop C.M. (2006). *Pattern Recognition and Machine Learning*. Springer.

Hastie T., Tibshirani R., Friedman J. (2009). *The Elements of Statistical Learning: Data Mining, Inference, and Prediction*, Second Edition. Springer, Springer Series in Statistics. <http://www-stat.stanford.edu/ElemStatLearn/>

Marden J.I. (2015). *Multivariate Statistics*. <http://stat.istics.net/Multivariate/>

McLachlan G.J., Peel D. (2000). *Finite Mixture Models*. Wiley, New York.

Duda R.O., Hart P.E., Stork D.G. (2001). *Pattern Classification*. Wiley, 2nd Edition.

Wedel M., Kamakura W.A. (2000), Market Segmentation: Conceptual and Methodological Foundations, 2nd edition, Norwell, MA: Kluwer Academic Publishers.

Witten J.D., Hastie T., Tibshirani R. (2014). An Introduction to Statistical Learning with *Applications in R*. Springer, Springer Series in Statistics.