

# ECTS - Instituto Superior de Contabilidade e Administração do Porto

## Degree: Marketing (evening Courses)

### Course: Foreknowledge Methods

Academic Year: 2013/2014

Academic year: 2

Term: Summer Semester

Attendance: Optional

Course Responsible Teacher: Mestre Cristina Torres

Number of Credits (ECTS): 5.0

Theoretical/Practical Work (hours): 3.0 h

#### Objectives:

1. To introduce the students to the study of quantitative methods.
2. Apply these methods to analyze data related to the business in order to obtain projections.
3. Encourage students to use computational tools to solve some of the exercises.

#### Syllabus:

- 1 Revisions.
  - 1.1. Sampling and Sampling Distributions.
  - 1.2. Parametric interval estimation.
  - 1.3. Tests of hypotheses.
2. Linear regression Models.
  - 2.1. Introduction and simple linear regression model.
  - 2.2. Correlation.
  - 2.3. Least squares method.
  - 2.4. Confidence interval estimation.
  - 2.5. Hypothesis testing.
  - 2.6. Analysis of variance ANOVA.
  - 2.7. Prediction.
  - 2.8. Use of linear regression in Excel.
3. Fundamental concepts.
  - 3.1. Time series.
  - 3.2. Stationary processes.
  - 3.3. Time series decomposition.
  - 3.4. Forecasting methods.
  - 3.5. Model selection criteria.
4. Decomposition models
  - 4.1. Nonseasonal models.
    - 4.1.1. Moving average methods.
    - 4.1.2. Exponential smoothing methods.
  - 4.2. Seasonal models.
    - 4.2.1. Moving average methods.
    - 4.2.2. Holt-Winters method.
  - 4.3. Prediction intervals.
  - 4.4. Use of Excel in the simulation of models.

#### Objectives:

The course consists of theoretical and practical lessons.

The practical classes are divided into lectures where the theoretical material is presented along with concrete examples and practical classes where they are presented and solved problems of implementation in order to build knowledge.

At the end of each chapter is suggested to solve a particular problem with the use of computational tools.

#### Assessment Methods:

The evaluation of knowledge of the discipline of Forecasting Methods:

1. Continuous evaluation: Practical worksheet + Theoretical and practical test.
2. Final evaluation: Theoretical and practical examination.

#### References:

1. Pedrosa, A.C., Gama, S.M.A. #Introdução Computacional à Probabilidade e Estatística#. Porto Editora.
2. Murteira, Muller, Turkman. Análise de Sucessões Cronológicas. McGraw-Hill, Portugal.
3. Makridakis, Wheelwright, Hyndman. #Forecasting: Methods and Applications#, Wiley.
4. Montgomery, Johnson. Forecasting and Time Series Analysis. McGraw-Hill, New York.
5. Wei. Time Series Analysis: Univariate and Multivariate. Addison - Wesley Publishing Company, Inc.

S. Mamede Infesta, 10 de Março de 2014