Statistics for Economics and Business

Academic Year: (2018 / 2019)   **Review date: 04-05-2018**

Department assigned to the subject: Statistics Department

Coordinating teacher: MARIN DIAZARAQUE, JUAN MIGUEL

Type: Compulsory ECTS Credits : 5.0

Year : 1 Semester : 1

OBJECTIVES

* To know exploratory data analysis.
* To know concepts and properties of probability calculus and random variables.
* To know the estimates construction methods and the estimates properties.
* To understand the concept of confidence interval and its applications.
* To know hypotheses testing, including the notion of p-value.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Exploratory data analysis (EDO)
1.1 Descriptive measures.
1.2 Graphics and diagrams
2 Introduction to Probability calculus
2.1 Bases of Probability theory
2.2 Random variables.
2.3 Distributions.
2.4 Independence and transformations.
2.5 Expectation.
3 Point estimation and interval estimation.
3.1 Introduction: Estimation problems.
3.2 Examples.
3.3 Properties of estimators.
3.4 Construction of estimators.
4. Hypothesis tests
4.1 Introduction: hipothesis, errors and function of power.
4.2 Wald contrast. Fisher test.
4.3 p-value
4.4 Ratio of likelihood test.

ASSESSMENT SYSTEM

Final exam.
Homework: particular analysis of real data (by groups of students)
Midterm exam.

% end-of-term-examination: 50

% of continuous assessment (assigments, laboratory, practicals…):   50

BASIC BIBLIOGRAPHY

- Wasserman, L (2004) All of Statistics, Springer-Verlag. New York.

ADDITIONAL BIBLIOGRAPHY

- Arnold, S.F. (1990) Mathematical Statistics, Prentice Hall. New York.

- Bain, L.J. and Engelhardt, M. (2000) Introduction to Probability and Mathematical Statistics, Duxbury Classic. Boston.
- Bickel, P.J. and Doksum, K.A. (2006) Mathematical Statistics- Second edition, Holden Day. San Francisco.

- Casella, G. and Berger, R.L. (2012) Statistical Inference - Second edition, Wadsworth and Brooks/ Cole. San Francisco.

- Dudewicz, E.J. and Mishra, S.N. (1988) Modern Mathematical Statistics, Wiley. New York.

- Gibbons, J.D. and Chakraborti (2010) Nonparametric Statistical Inference. Fifth Edition, Marcel Dekker. New York.

- Rice, J. (2006) Mathematical Statistics and Data Analysis. Third edition, Brooks and Cole. San Francisco.

- Van der Vaart, A.W. (2001) Asymptotic Statistics, Cambridge University Press. Cambridge.