

Time Series

Academic Year: (2020 / 2021)

Review date: 09-07-2020

Department assigned to the subject:

Coordinating teacher: MARIN DIAZARAQUE, JUAN MIGUEL

Type: Electives ECTS Credits : 6.0

Year : 2 Semester : 2

OBJECTIVES

The goal of the course is twofold. On the one hand, the course will provide with the basic foundations of univariate and multivariate time series analysis. On the other hand, students will be able to build univariate and multivariate models with real data using free software R.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Descriptive methods of time series
 - 1.1 Introduction to time series
 - 1.2 Smoothing methods and Holt-Winters models.
 - 1.3 Spectral analysis methods.
2. Univariate ARIMA models.
 - 2.1. Specification and diagnosis of ARIMA models.
 - 2.2 Prediction and selection of models.
 - 2.3 Intervention analysis.
- 3.3 Vector autoregressive models.
 - 3.1 Introduction.
 - 3.2 Applications and examples.

LEARNING ACTIVITIES AND METHODOLOGY

There are computer classes where students are expected to learn how to work with real time series data.

Students are expected to write a Project on time series applied to their own data. They will be evaluated for this Project.

There are personal tutorials with the teacher available for the students who want to consult doubts about different aspects of the course.

ASSESSMENT SYSTEM

Project (with real data): 50%

Assistance to classes: 10%

Final exam: 40%

% end-of-term-examination:	40
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% of continuous assessment (assignments, laboratory, practicals...):	60
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BASIC BIBLIOGRAPHY

- Box, G.E.P., Jenkins, G.M. and Reinsel, G. Time Series Analysis: Forecasting and Control,, Prentice-Hall, 1994
- Enders, W. Applied Econometric Time Series, Wiley & sons, 2004
- Franses, P.H. and van Dick, D. Non-linear time series models in empirical finance, Cambridge University Press., 2000
- Hamilton, J.D. Time Series Analysis., Princeton University Press, 1994
- Lütkepohl, H. and Krätzig, M. Applied Time Series Econometrics, Cambridge University Press., 2004
- Peña, D., Tiao, G.C. and Tsay, R.S. A Course in Time Series Analysis, Wiley & sons, 2000

