

TIME SERIES ANALYSIS

Coordinator: Daniel Peña

Professors: Andrés M. Alonso and Ismael Sánchez

Objective: The course in Time Series Analysis will illustrate how to build time series models for univariate and multivariate time series data.

TIME SERIES ANALYSIS

SYLLABUS

Module 1 (20 hours):

1. Introduction to time series
2. Descriptive analysis of a time series
3. Time series and stochastic processes
4. Autoregressive, MA and ARMA processes
5. Integrated and long memory processes
6. Seasonal ARIMA processes
7. Forecasting with ARIMA models
8. Identifying possible ARIMA models
9. Estimation and selection of ARMA models
10. Model diagnosis and prediction

TIME SERIES ANALYSIS

SYLLABUS

Module 2 (20 hours):

- 1. Intervention analysis**
- 2. Outliers**
- 3. Non-linear models**
- 4. Dynamic regression models with stationary variables**
- 5. Regression with integrated variables.
Cointegration**
- 6. Multivariate models**

SOFTWARE for Time series analysis



Statistical Methods for Business and Economics



Daniel Peña

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Full Professor at the Statistics Department

Ph.D. in Engineering

Fields of interest: Times series; Multivariate analysis; Robust and diagnostic methods; Bayesian inference and Quality improvement methods.

Course Coordinator



Andrés M. Alonso
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Associate Professor at the Statistics Department

Ph.D. in Economics

**Fields of interest: Time series analysis; Bootstrap methods;
Applied statistics and Econometrics.**

Professor of Module 1



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Associate Professor at the Statistics Department

Ph.D. in Industrial Engineering

Fields of interest: Time series; Dynamic models; Non stationary Processes; Adaptive estimation; Applied models for wind energy and Statistical process control.

Professor of Module 2