

Time Series Econometrics (in French)

Modelling and forecasting temporal dynamics



PROGRAMME
Master 1

SEMESTER
Semester 2

CREDITS
3 ECTS

CONTACT HOURS
24h Lectures

Course Description

In economics, we are often confronted with variables that evolve over time, such as GDP or oil prices. These variables can be viewed as the realization of a sequence of dependent random variables, known as a time series.

Because time series require specific econometric treatments, this course is entirely dedicated to their analysis. It is structured around the Box-Jenkins procedure, introducing and emphasizing central concepts such as stationarity, unit root tests, and ARMA processes.

This course is shared with Master 1 QAE. Please note that the instruction is conducted in French. This is an optional lecture.

Learning Outcomes

- Understand the fundamental properties of time series data in economics.
- Apply the Box-Jenkins procedure for time series modeling and forecasting.
- Utilize and confidently interpret central concepts including stationarity and unit root tests.
- Appropriately model data using ARMA processes.
- Implement time series analysis practically using the R software.

Indicative Content

- 1. Core Principles:** Characteristics of time series and temporal dependencies.
- 2. Stationarity:** Understanding stationarity and performing unit root tests.
- 3. ARMA Processes:** Modeling autoregressive and moving average processes.
- 4. The Box-Jenkins Procedure:** Methodological steps for time series forecasting.
- 5. Applied Analysis in R:** Practical implementation using statistical software.

Teaching & Learning Approach

This course is structured around theoretical lectures integrated with direct practical applications. Instruction bridges the understanding of central econometric concepts with hands-on technical application using R.

Assessment

Written Exam + Project