



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Serie Storiche Economiche

2021-1-F8204B001-F8204B001M

Learning objectives

The course aims at providing the knowledge needed to analyse economic time series, both univariate and multivariate. This course provides a comprehensive understanding of non-stationary univariate time series and vector autoregressive processes, focusing attention on their use for forecasting and dynamic analysis. It also describes how to test the cointegration relationships between economic variables and to analyse deviations from a long-run equilibrium. By the end of the course, students are expected to acquire:

- the knowledge of advanced statistical methods to analyse time series;
- the ability to analyse univariate and multivariate time series describing economic variables;
- the ability to interpret the results obtained from time series analysis.

Contents

Contents:

- non-stationary univariate time series;
- unit root tests;
- stationary multivariate time series;

- vector autoregressive models (VAR);
- cointegration;
- error correction mechanism (ECM);

- Johansen's procedure;

- cointegration tests.

Detailed program

Detailed program:

- non-stationary economic time series;
- trend-stationary and unit root processes;
- unit root tests;
- the Beveridge-Nelson decomposition;
- vector autoregressive processes (VAR);
- conditions for stationary VAR processes;
- estimation of VAR models;
- use of VAR models: forecasting, the Granger causality test, the impulse-response function;
- spurious regression;
- cointegration;
- error correction mechanism (ECM);
- Granger's representation theorem;
- Johansen's procedure;
- cointegration tests.

Prerequisites

Basic knowledge of time series analysis is recommended.

Teaching methods

The course is structured in frontal lectures and labs. However, during the Covid-19 emergence learning is delivered via previously recorded lessons, with some additional events via videoconferencing.

Assessment methods

The assessment of learning outcomes consists of an oral exam on the topics covered in the course. During the Covid-19 emergence, oral exam is conducted by using the WebEx platform and a link to access the exam session is available in the e-learning page of the course.

Assessment criteria.

The exam score is on a 30-point scale.

Textbooks and Reading Materials

- Textbook: Zavanella, B. (2004) Modelli per le serie storiche non stazionarie e multivariate. Editore: CUSL.
- Reading materials (slides and lecture notes) provided by the teacher.
- Recommended book: Hamilton, J.D. (1994) Time series analysis. Editor: Princeton University Press.

Semester

The course will be held in the first module of the second semester.

Teaching language

Italian
