Doctoral Program in Economics

UNIVERSITÀ DEGLI STUDI FIRENZE | UNIVERSITÀ DI SIENA | UNIVERSITÀ DI PISA

Academic year 2023/24

TIME SERIES

Period:

III term

Course hours:

20.

Teachers:

M. P. TUCCI

Exam methods:

A computer homework, due after 7 days, is assigned at the end of each class. All homeworks count for 50% of the final grade. The remaining 50% of the grade is associated with a final paper (an original work) of 10 pages at most, including the relevant computer output, using one of the techniques discussed in class and structured as a publishable paper due two weeks after the end of classes.

Prerequisites:

Passing grade in Econometrics I, Panel Data.

Program

The following topics are covered: the classical k-variable linear regression model and the battery of tests used to check the validity of its assumptions, elements of asymptotic theory, the maximum likelihood approach and systems of structural equations (identification and estimation), introduction to time series models, var and vec models, non-stationary time series, unit root test, cointegration analysis (the single equation Engle-Granger procedure and the multivariate Johansen procedure), the LSE approach and exogeneity, introduction to the use of machine learning in econometrics and nowcasting. Econometric software R is used throughout the course.

Educational objectives

This course wants to provide the future economist with an overview of the most advanced econometric techniques to deal with real economic and financial problems and some proficiency in some of them.

Bibliographical references

Greene (2007), Johnston and Dinardo (1997), Judge et al.(1985), Favero (2001), Brooks 4th Ed. (2019) for some computer applications, Emmanuel Flachaire (2021), Giannone, Monti and Reichlin (2016).