

Econometrics (24 hours)

Professor: Olivier Donni

Room B124, THEMA, 1st floor, building "Chênes 1".

Email: olivier.donni@u-cergy.fr

Webpage: <https://sites.google.com/site/olivierpmgdonni/>

Learning Goals:

- Knowledge: initiation to the main techniques used in econometrics
- Skills: an ability to interpret empirical results and suggest empirical methods for specific econometric models

Content of the course:

Introduction (the simple regression model with a graphical illustration),

Chapter 1: Finite sample properties of ordinary least squares (definition of OLS estimators, properties of OLS estimators, hypothesis testing under normality, relation to maximum likelihood, generalized least squares)

Chapter 2: Large sample properties with random sampling (limit theorems for sequence of random variables, large sample distribution of OLS estimators, general hypothesis testing: Wald and LM tests, heteroskedasticity)

Chapter 3: Instrumental variable estimations (examples of endogeneity bias, definition of IV estimators and 2SLS estimators, properties of IV estimators and 2SLS estimators)

Chapter 5: Introduction to Maximum Likelihood methods (the method, application to OLS, general hypothesis testing: Wald, LM and LR tests)

Chapter 4: Topics in time series (fundamental concept in time series analysis: stationarity and ergodicity, properties of OLS with time series, modeling serial correlation, testing serial correlation)

Exercises

Students have also to read one classical research paper in applied econometrics.

Main references:

Hayashi F., Econometrics, Princeton University Press

Secondary references:

Wooldridge J., Introductory Econometrics,

Wooldridge J., Econometric Analysis of Cross Section and Panel Data,

Davidson R., McKinnon, Estimation and Inference in Econometrics, Oxford University Press