

## Econometrics (24 hours)

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

... and possibly:

Introduction to Generalized Method of Moments

Tutorials: Exercises + One paper in a given list

### Main references:

Wooldridge J., Introductory Econometrics,

Hayashi F., Econometrics, Princeton University Press

### Secondary references:

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

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