

Econometrics

Introduction to statistical modeling



PROGRAMME
Master 1

SEMESTER
Semester 1

CREDITS
3 ECTS

CONTACT HOURS
24h Lectures, 6h TD

Course Description

This course offers an introduction to econometrics and linear models.

We first cover the fundamentals of statistics, probability and matrix algebra. Students then learn how to build a proper linear model and how to estimate the associated parameters using the Ordinary Least Squares estimator. The course then proposes various extensions related to the violation of the standard hypotheses surrounding the linear model.

This course is shared with Master 1 QAE

Learning Outcomes

- Understand the concepts surrounding Data Generation Processes.
- Translate a question related to economics or business into an econometric model to estimate.
- Estimate the parameters of a model and assess the quality of this estimation.
- Express a clear and correct interpretation of the outcome of the estimation process.

Indicative Content

1. **Fundamentals:** Refresher course and hypothesis testing.
2. **Linear Modeling:** Building the empirical model and applying ordinary least squares.
3. **Model Properties:** Understanding inference and consistency.
4. **Hypothesis Violations:** Addressing issues of normality and heteroskedasticity.
5. **Advanced Extensions:** Dealing with endogeneity in econometric models.

Teaching & Learning Approach

The course is divided into seven chapters. Students transition from core statistical and mathematical concepts to estimating parameters and evaluating standard hypothesis violations in economic scenarios. A particular emphasis is made on the ability to interpret the outcome of estimations in a way that can assist decision-making.

Assessment

Written exam