MGT-581

Introduction to econometrics

de Rassenfosse Gaétan

Cursus	Sem.	Type
Management of technology		Opt.
Management, Technology and Entrepreneurship minor	E	Opt.
Managmt, tech et entr.	MA2, MA4	Obl.

Language of teaching	English
Credits	4
Session	Summer
Semester	Spring
Exam	Written
Workload	120h
Weeks	14
Hours	**4 weekly**
Courses	2 weekly
Exercises	2 weekly
Number of positions	

Summary

The course provides an introduction to econometrics. The objective is to learn how to make valid (i.e., causal) inference from economic data. It explains the main estimators and present methods to deal with endogeneity issues.

Content

- Ordinary least square estimator
- Maximum likelihood estimator
- Instrumental variable
- Panel data
- Experiments and quasi-experiments

Keywords

Econometrics; Statistics; Data Analysis; Causality; Data Science

Learning Prerequisites

Important concepts to start the course

Sound understanding of statistics and probability concepts (central limit theorem, hypothesis testing, etc.)

Learning Outcomes

By the end of the course, the student must be able to:

- Recognize pitfalls and bias in data collection and econometric models
- Illustrate the concept of endogeneity
- Check the validity of an econometric result
- Quantify an economic relationship
- Design an appropriate regression model
- Interpret coefficients of econometric regressions

Transversal skills

- Demonstrate a capacity for creativity.

- Demonstrate the capacity for critical thinking
- Use both general and domain specific IT resources and tools

Teaching methods

Lectures provide the theoretical knowledge and exercise sessions illustrate theory using computer exercises.

Expected student activities

- Attendance and participation at lectures and exercise sessions
- Submission of problem sets

Assessment methods

- Individual problem sets: 40%
- Written exam: 60%

Supervision

Office hours	Yes
Assistants	Yes
Forum	No

Resources

Virtual desktop infrastructure (VDI)

No

Bibliography

The course will be based on (ref. not compulsory)

• James H. Stock and Mark W. Watson, Introduction to Econometrics, Third Edition (Updated Edition), Pearson. ISBN: 978-0-13348687-2 (http://www.isbnsearch.org/isbn/9780133486872)

Additional useful references:

• Angrist, J.D. and Pischke, J.-S. *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton University Press, 2009.

• Cameron, A.C. and Trivedi, P.K. *Microeconometrics Using Stata*. Stata Press, 2010.

• Greene, W.H. Econometric Analysis. Prentice Hall, 2011.

• Wooldridge, J.M. *Introductory Econometrics: A Modern Approach*. Cengage Learning, 2012.

Ressources en bibliothèque

- Introduction to econometrics / Stock & Watson
- Introductory econometrics / Woolridge
- Mostly Harmless Econometrics / Angrist (online)
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- Mostly Harmless Econometrics / Angrist (print)
- Econometric analysis / Greene
- Microeconomics using Stata / Cameron

Notes/Handbook

Students are provided with lecture slides.

Moodle Link

- http://moodle.epfl.ch/course/view.php?id=14425