

## International Economics

Academic year 2019-2020

## Econometrics I

### EI035 - Autumn - 6 ECTS

Monday 16h15 - 18h00

## Course Description

This is an introductory to intermediate econometrics course for first year master students. Its goal is to equip students with solid understanding of the econometric theory that underlies basic econometric models. After a review of the multiple regression model, OLS computation, small sample and asymptotic properties, the course will deal with generalizations of the least squares problem, to discuss GLS, instrumental variables, panel data and approaches to deal with limited dependent variables. The course features weekly review sessions covering theoretical and practical exercises using Stata. After taking this course, students should be able to: (1) choose appropriate models and estimators for given economic applications; (2) interpret estimates from basic econometric models; (3) diagnose potential problems with basic models and know how to remedy them; (4) progress onto the study of advanced topics in econometrics.

## > PROFESSOR

[Julia Cajal Grossi](#)

[Office hours](#)

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## > ASSISTANT

Hayley Marie Pallan

[Office hours](#)

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## Syllabus

### Pre-requisites

Knowledge of statistics, probability and matrix algebra is required. All students must have taken and passed the *Maths Bootcamp* for incoming MIE students. It is assumed that all students have taken at least one course in undergraduate econometrics and one course in probability and statistics.

### Textbooks

The course will not follow one specific textbook; the topics presented in the lectures are covered in:

W. H. Greene, *Econometric Analysis*, Pearson, 7<sup>th</sup> edition (any edition from 5<sup>th</sup> onwards is suitable).

Students that need to revise more basic econometrics might find the following useful:

J. Wooldridge, *Introductory Econometrics: A Modern Approach*, MIT Press (5<sup>th</sup> edition, onwards).

The second part of the course (lectures 9 to 11) will also use material from:

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

A good Stata+Econometrics manual:

C. Cameron and P. Trivedi, *Microeconometrics Using Stata*, Revised Edition, Stata Press.

## Grading

The final grade will be based on three components: (1) a mid-term exam; (2) an in-class applied exercise sheet; (3) a final exam. Weights for each component of the grade are as follows: 20% midterm, 20% applied exercise sheet, 60% final exam.

## Tutorials

The lectures will mainly focus on econometric theory. Weekly review sessions will cover the solution of theoretical and applied exercises, some of which will be solved in Stata. An exercise sheet will be made available every week and students should attempt to solve it fully before the tutorial takes place. Please note that NO solutions will be provided by the TA or the lecturer.

## Other Resources

The moodle page for this course will feature an *open forum*. We encourage students to ask / answer questions and share material on that space. Time permitting, the TA and the lecturer will intervene in such discussions.

Both the TA and the lecturer offer office hours. The lecturer's office hours are pre-booked (here : <https://juliacajalgrossi.youcanbook.me/> ), while the TA's are drop-in sessions. There will be no additional office hours leading up to the examination instances. All students should come prepared to office hours. At least they should: (1) be able to explain clearly the questions they have, (2) have attempted to answer these questions themselves with the available resources (books above, lecture slides, forum, etc.).

## Lectures and Topics (subject to change)

Meeting	Date	Topic
1	23.Sep.19	Introduction. LRM.
2	30.Sep.19	OLS. Mechanics and estimation.
3	07.Oct.19	OLS. Small and large sample properties.
4	14.Oct.19	Inference.
5	21.Oct.19	Heteroskedasticity. GLS. FGLS.
6	28.Oct.19	Instrumental Variables. 2SLS. Part 1.
7	04.Nov.19	Mid-term exam.
8	11.Nov.19	Instrumental Variables. 2SLS. Part 2.
9	18.Nov.19	Panel Data. Part 1.
10	25.Nov.19	Panel Data. Part 2.
11	02.Dec.19	MLE. Binary Outcomes.
12	09.Dec.19	Applied Exercise Sheet.
13	16.Dec.19	Final Exam.