

Introduction

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Class Schedule

Lecture:

Tuesday 3:10pm - 6:00pm

Wednesday 9:10am - 12:00pm

Practica:

Friday 9:10am - 10am (Economics Groups A and B)

Friday 10:10am - 11:00am (Finance)

▶ [Google Calendar](#)

Your Teachers



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Course Homepage

There is a course homepage with slides, handouts and additional readings:

- <http://www.schmidheiny.name/teaching/upf/econometrics/>
(username: upf, password:)

Please send emails directly to

kurt.schmidheiny@upf.edu
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and not through the intranet.

What this course is about

- Basic micro-econometric tools
- Basic panel data tools
- Basic time series tools

Challenge of this course: Heterogeneity

This is a large class with students from very different backgrounds and with very different goals.

Heterogenous Backgrounds

Some of you ...

- ... have studied econometrics on an advanced level
- ... have never studied econometrics

- ... have strong formal training
- ... have weak formal training

- ... have performed sophisticated own empirical projects
- ... have never run a regression

Heterogenous Goals

Some of you ...

- ... want to do empirical research in their PhD
- ... want to do a purely theoretical PhD

- ... want to use quantitative analysis in their work
- ... want to become decision makers

- ⇒ Some disappointment is inevitable.
- ⇒ We are positive that each of you will be challenged in some dimension.

What you can expect from this course

- Applied Econometrics
- Critically read empirical research papers
- Do empirical research in your work or in your PhD
- Have a clear intuition about identification strategies
- A good preparation for the follow-up econometrics courses

Part I: Microeconometrics (40 hours)

1. Causal effects and the logic of randomized experiments
2. Linear regression:
 - estimation
 - small and large sample properties
 - hypothesis testing
 - omitted and irrelevant variables
 - functional form
 - heteroscedasticity
 - clustering

What you cannot expect from this course

- This course is *not* an introduction to *theoretical econometrics*
- ⇒ You will not be able to develop new econometric methods.
- This course is *not* an introduction to a *statistical software*
- ⇒ We will not show you how to click on sophisticated econometric methods which you don't understand.

4. Instrumental variable estimation:

- estimation
- identification
- weak instruments

5. Panel data:

- fixed effects
- random effects

6. Maximum likelihood estimation

7. Binary choice: probit and logit

Module 1: Monte Carlo simulation

Module 2: The bootstrap

Part II: Time Series Econometrics (20 hours)

1. Stationary and Non-stationary Processes
2. Autoregressive and Moving Average Processes
3. Likelihood Methods for ARMA Processes: Estimation, Asymptotics and Hypothesis Testing
4. Vector Autoregressions: Definition, Impulse response functions, Variance decompositions and Estimation
5. Generalized Method of Moments

Introductory textbooks

- ▶ Stock, James H. and Mark W. Watson (2007)
Introduction to Econometrics, 2nd ed.
Pearson Addison-Wesley
- ▶ Wooldridge, Jeffrey M. (2009)
Econometrics: A Modern Approach, 4th ed.
South-Western Cengage Learning
- ▶ Harvey, Andrew C. (1993)
Time Series Models, 2nd ed.
MIT Press

Level of the course

The level of this course is *between introductory and advanced* textbooks.

It is introductory concerning ...

- ... its topics
- ... its mathematical rigor (most of the times)

It is advanced concerning ...

- ... matrix notation
- ... its mathematical rigor (in some few cases)

It is almost perfectly the level of Greene (2007), *Econometric Analysis*, Pearson. A textbook that we do NOT recommend.

Advanced textbooks (Microeconometrics)

- ▶ Cameron, A. Colin and Pravin K. Trivedi (2005)
Microeconometrics: Methods and Applications
Cambridge University Press
- ▶ Davidson, Russell and James G. MacKinnon (2004)
Econometric Theory and Methods
Oxford University Press
- ▶ Hayashi, Fumio (2000)
Econometrics
Princeton University Press
- ▶ Wooldridge, Jeffrey M. (2002)
Econometric Analysis of Cross Section and Panel Data
MIT Press

Advanced textbooks (Time Series)

- ▶ Enders, Walter (2003)
Applied Econometric Time Series
Wiley.
- ▶ Hamilton, James (1994)
Time Series Analysis
Princeton University Press.

Handouts

There are handouts for all topics of the course.

These handouts are ...

- ... very brief
 - ... not self-contained
 - ... intended to be a useful companion for your life after this course
- ⇒ You will *absolutely need* to work with one or more textbooks

Companion textbooks

- ▶ Angrist, Joshua D. and Jörn-Steffen Pischke (2009)
Mostly Harmless Econometrics: An Empiricist's Companion
Princeton University Press
- ▶ Kennedy, Peter (2008)
A Guide to Econometrics, 6th ed.
Blackwell Publishing

Statistical Software

- I will use *STATA 11*
- There is a "A Quick Guide to Stata for Windows" on the course homepage
- Stata 10 is available in the LEEX computer lab
- Older versions are available in the other computer labs

Two alternatives:

- Use another statistical package. Please check with us if it covers all methods we use. For example, *R* yes, *SPSS* no
- Program all econometric methods in a matrix algebra language. We will support you using *Matlab* or *Stata Mata*.

Problem Sets

There will be 9 problem sets.

- They will be graded
- You may work in groups
- Hand-in individually
- They will be discussed with your TA in the "practica" class
- There will not be solutions
- They count for 25% of the final grade

Exam

There will be a written final exam in December

- Counts for 75% of final grade
- Some theoretical questions
- Many applied questions: interpretation of Stata output

Practica

There is a weekly 1 hour practica class.

There are three groups: 1 MSc Finance, 2 MSc Economics

Problem Sets will typically be distributed on Wednesday, are due for Tuesday next week at 3pm and will be discussed the following Friday.

Your TAs:

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