

# Applied Econometrics

## Syllabus

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Most of you is probably interested in empirical research in economic- and finance-oriented institutions. The course on Applied Econometrics is designed to introduce the basic tools to analyze linear relationships among economic and financial variables and to draw conclusions thereof.

Theoretical classes will be supported and complemented by empirical exercises. We will try to address empirical and policy relevant questions, such as the response of inflation to an accommodative monetary policy, how to forecast inflation or how to compute measure of economic uncertainty that vary over time. As a consequence, the course will require the use of computers and programs; we will mainly work with Eviews.

Core classes will be supported by practical sessions where the theoretical material will be reviewed with examples and the problem set corrected. The teaching assistant of the practical classes is Lea Bousquet.

Prerequisites are the knowledge of elementary calculus. Matrix notations and basic concepts of statistics and probability will be refreshed.

Grading. Ten problems sets and one final exam. The final exam counts 40% of the final grade and the problem sets contribute to 60% of the final grade. Problem sets can be done either individually or in groups of two/three people max and should be handed in to the teaching assistant before the theory class start.

The course organization more in details is as follows:

- Part 1: Linear Multivariate Regression Model
  1. Statistics and Probability Review, (Tutorial)
  2. Bivariate Regression Model, Intro (PS1)
  3. Bivariate Regression Model, Properties (PS2)
  4. Bivariate Regression Model, Specification (PS3)
  5. Multivariate Regression Model (PS4)
  6. Dummy Variables (PS5)

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7. Multivariate Regression Model, Pitfalls (PS6)

- Part 2: Applied Times Series

1. Basic Concepts in Applied Times Series, AR, MA and ARMA processes (PS7)
2. Forecasting and Linear Projections (PS8)
3. VAR and Structural VAR (PS9)
4. Maximum Likelihood and Arch models (P10)
5. Review Class

References

You can mostly rely on the slides and handouts. However, brave students can find below a list of suggested text books and readings.

- First Part:

- (Introductory) Wooldridge J.M., *Introductory econometrics*, South-Western College Pub., 2003
- (Introductory) Stock J.H. and Watson, M. W., *Introduction to Econometrics*, 3rd Ed., Addison-Wesley Series in Economics, 2011
- (Advanced) Greene W.H., *Econometric analysis*, 5ed., Prentice Hall, 2003
- (Advanced) Hayashi F., *Econometrics*, Princeton University Press, 2000

- Second Part:

- (Advanced) Hamilton J.D., *Time series analysis*, Princeton University Press, 1994
- (Advanced) Canova F. *Methods for applied macroeconomic research*, Princeton University Press, 2007.
- (Advanced) Sims, Macroeconomics and Reality (1980), *Econometrica* (VARs)