

IWH-DPE/CGDE First-Year Course

Econometrics

Work load: 150 hours / 6 ECTS

Lecture: Bi-weekly, 16 x 90 minutes / in person at IWH

Begin: 14.10.2024

Time: * 09:30–11:30

** 09:30–11:00 and 11:30–13:00

I. Introduction (Day 1)

1. Review of Linear Models and Asymptotic Theory

Date: 14.10.2024*

Lecturer: Dr André Diegmann, IWH

II. Non-linear and Panel Data Models (Day 2 and Day 3)

2. Panel Data Models
3. Maximum-likelihood Estimation

Date: 04.11.2024**

Lecturer: Professor Dr Julia Schaumburg, Vrije Universiteit Amsterdam

4. Models for Binary and Categorical Outcomes
5. Models for Limited Dependent Variables

Date: 08.11.2024**

Lecturer: Professor Dr Julia Schaumburg, Vrije Universiteit Amsterdam

III. Causal Inference (Day 4 and Day 5)

6. Instrumental Variables
7. Regression Discontinuity

Date: 11.11.2024**

Lecturer: Professor Dr Felix Noth, IWH and Otto von Guericke University Magdeburg

8. Matching

Date: 25.11.2024 (Leipziger Straße 100, Conference Room, 3rd floor)

Time: 09:30–11:00

Lecturer: Professor Xiang Li, PhD, IWH and Martin Luther University Halle-Wittenberg

9. Differences-in-Differences

Date: 25.11.2024 (Leipziger Straße 100, Conference Room, 3rd floor)

Time: 11:30–13:00

Lecturer: Professor Dr Felix Noth, IWH and Otto von Guericke University Magdeburg

IV. Time Series (Day 6 and Day 7)

10. Time Series I

Date: 13.12.2024**

Lecturer: Professor Dr Malte Rieth, Martin Luther University Halle-Wittenberg

11. Time Series II

Date: 07.01.2025** (Leipziger Straße 100, Conference Room, 3rd floor)

Lecturer: Professor Dr Malte Rieth, Martin Luther University Halle-Wittenberg

V. Special Topics (Day 8)

12. Empirical Methods in Lab and Field Experiments

Date: 20.01.2025

Time: 09:30–11:00

Lecturer: Professor Dr Sabrina Jeworrek, IWH and Otto von Guericke University Magdeburg

13. Machine Learning Methods for Economics and Finance

Date: 20.01.2025

Time: 11:30–13:00

Lecturer: Professor Dr Fabian Wöbbeking, IWH and Martin Luther University Halle-Wittenberg

Venue

Halle Institute for Economic Research (IWH) – Member of the Leibniz Association, Kleine Märkerstrasse 8, 06108 Halle (Saale), conference room (ground floor).

Problem sets

There will be eight assignments throughout the term. At the end of each day, the lecturer will post assignments, which are due within two weeks time. In order to complete the course, six problem sets (at least one from every block indicated by Roman numbers) will have to be successfully passed.

Selected Literature

Althey, S.; Imbens, G. W. (2019): Machine Learning Methods that Economists Should Know About. *Annual Review of Economics* 11, 685-729.

Angrist, J. D.; Pischke, J.-S. (2015): *Mastering Metrics*. Princeton University Press.

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

Cameron, A.C.; Trivedi, P.K. (2005): *Microeconometrics, Methods and Applications*, Cambridge University Press.

Gelman, A.; Carlin, J. B.; Stern, H. S.; Dunson, D. B.; Vehtari, A.; Rubin, D. B. (2013): *Bayesian Data Analysis, Third Edition*. Chapman & Hall/CRC Press.

Greene, W.H. (2017): *Econometric Analysis, 8th edition*, Pearson.

Imbens, G. W.; Rubin, D. B. (2015): *Causal Inference for Statistics, Social, and Biomedical Sciences: An Introduction*. Cambridge University Press.

Kilian, L.; Lütkepohl, H. (2017): *Structural Vector Autoregressive Analysis*, Cambridge University Press, 2017.

McElreath, R. (2020): *Statistical Rethinking. A Bayesian Course with Examples in R and Stan*. Chapman & Hall/CRC Press.

Winkelmann, R.; Boes, S. (2006): *Analysis of Microdata*. Springer.

Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. MIT press.

Additional literature to prepare for every dates will be announced.