

# Modern Econometrics using R

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for Master Students

## CONTENT

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The course offers a survey of modern econometrics which is primarily designed to solve the fundamental evaluation problem. It will combine lecture style and practical exercises using R in class. Students should install RStudio before the first session. We will use RMarkdown in each session.

- Topics covered are:
- Modern approach to Econometrics
  - Fundamental evaluation problem
  - Potential outcome approach
  - Methods: OLS, IV, Matching, RCT, BAE, DiD, RDD
  - Labor Market and Education

## LECTURE

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<b>Time &amp; Location:</b>	- 3 May 2019	3 pm – 6 pm, room xxx
	- 4 May 2019	10 am – 1 pm, room xxx
	- 21 June 2019	3 pm – 6 pm, room XXX
	- 22 June 2019	10 am – 1 pm, room xxx
	- 5 July 2019	3 pm – 6 pm, room xxx
	- 6 July 2019	10 am – 1 pm, room xxx

## EXAMINATION MODALITIES

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**Credit points** 4 ECTS

**Examination:** Final Exam

**Area of Study**

M.Sc. Economics:

E&P: Elective Courses

VWL-Master, PO 2011:

Wahlpflichtbereich: Volkswirtschaftspolitik / Makropolitik  
Quantitative Methoden

VWL-Master, PO 2014:

Spezialisierungsbereich: Empirical Economics  
Labor, Human Resource Management & Organization

## LITERATURE

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### Main references:

- Angrist, J.D., & Pischke, J. (2015): Mastering 'Metrics, The Path from Cause to Effect, Princeton University Press.
- Angrist, J. D., & Pischke, J. (2017): Undergraduate Econometrics Instruction: Through our Classes, Darkly, Journal of Economic Perspectives, Vol. 31, 125-144.
- Athey, S., & Imbens, G.W. (2017): The State of Applied Econometrics: Causality and Policy Evaluation, Journal of Economic Perspectives, Vol. 31, 3-32.
- Boeri, T., & Van Ours, J. (2013). The economics of imperfect labor markets. 2nd edition. Princeton University Press.
- Heiss, F. (2016): Using R for Introductory Econometrics, Düsseldorf.

### 3 and 4 May 2019

#### **Introduction to modern econometrics: Randomized controlled Trials, Fundamental evaluation problem, Identification, Regression, ATT, ATE, ATU**

- Angrist, J.D., & Pischke, J. (2015): Mastering 'Metrics, The Path from Cause to Effect, Princeton University Press, 1-97.
- Heiss, F. (2016): Using R for Introductory Econometrics, Düsseldorf, 1-89.
- Fryer, R. G. (2014): Injecting charter school best practices into traditional public schools: Evidence from field experiments, The Quarterly Journal of Economics, 1355-1407.

### 21 and 22 June 2019

#### **OLS versus Matching, OLS versus IV**

- Angrist, J.D., & Pischke, J. (2015): Mastering 'Metrics, The Path from Cause to Effect, Princeton University Press, 98-146 and 209-234.
- Heiss, F. (2016): Using R for Introductory Econometrics, Düsseldorf, 219-225.
- Hille, A., & Schupp, J. (2014): How Learning a Musical Instrument affects the Development of Skills, Economics of Education Review, 44, 56-82.
- Imbens, G.W. (2015): Matching Methods in Practice: Three Examples, Journal of Human Resources, 50, No. 2, 373-419.
- Winterhager, H., & Heinze, A., & Spermann, A. (2006): Deregulating Job Placement in Europe: A Microeconomic Evaluation of an Innovative Voucher Scheme in Germany", Labour Economics, 13, 505-517.

### 5 July and 6 July 2019

#### **RDD and DiD**

- Angrist, J.D., & Pischke, J. (2015): Mastering 'Metrics, The Path from Cause to Effect, Princeton University Press, 147-208.
- Becker, S.O. et al. (2018): Forced migration and human capital: Evidence from Post-WWII Population transfers, NBER Working Paper 24704.
- Heiss, F. (2016): Using R for Introductory Econometrics, Düsseldorf, 197-206.