

Syllabus for Econometrics II

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TA: Tim Mensinger, Institute of Finance and Statistics, tmensinger@uni-bonn.de.

Lectures: Monday 10:00-11:30 in lecture hall (HS) F/ Tuesday 10:15-11:45 in lecture hall (HS) N

Office Hours: Please feel free to ask questions during the lectures or after class. You can also email me to set up appointments at another time.

Course Description: This class is the second semester of the econometrics sequence for Ph.D. students and it heavily builds on the material from the first semester.

In the first half of the semester we will relax some of the underlying assumptions of the linear regression model to study various empirically relevant settings: average treatment effects under exogeneity, instrumental variables methods, time series models for dependent data and corresponding point estimators and adjusted variance estimators, and panel data models with corresponding fixed effects and difference-in-differences estimators.

In the second half of the semester we study limited dependent variable models, including the probit and logit models for binary outcomes, the multinomial logit and nested logit models for discrete outcomes, censored and truncated regression models. We will also discuss general extremum estimation to provide a unified framework for many of the discussed models as well as for other models not previously covered.

Readings: Handouts will be distributed using the course URL. A very useful additional reference is: *Econometrics* by Hansen, Princeton University Press, 2022. For the available data, see <https://www.ssc.wisc.edu/~bhansen/econometrics/>.

Problem Sets: There will be 5 problem sets. By turning in the problem sets, you can earn bonus points for the final exam. For each problem set, you can earn either 0, 1, or 2 points. You can work in small groups (4 students max), but each student must turn in individual solutions.

Software: Some of the problem sets will require using statistical software to implement estimators and perform simulation studies. In principle, the choice of the software is left to the students, but we highly recommend to use either R or MATLAB.

R is a programming language and software environment for statistical computing and graphics, which is very popular in statistics and has the huge advantage that it is free. More information can be found at <https://www.r-project.org/> and see also: *Using R for Introductory Econometrics* <http://www.urfie.net/read>

Information about downloading and installing MATLAB can be found <https://www.hrz.uni-bonn.de/de/services/software-hardware/pc-anwendungen/math.anwendungen/matlab>.

Additional TA Sessions: We will try to set up some additional sessions for the students to meet with the TA. Tim will mainly focus on discussing solutions to the problem sets and answer questions. We will announce the times later in the semester.

Final Exam: The final exam will be two hours and will have 120 points in total. You can earn up to 10 bonus points through problem sets.