

Syllabus for Econometrics II (Ph.D.)

Course URL: https://ecampus.uni-bonn.de/goto.php?target=crs_1643622

Instructor: Joachim Freyberger, Institute for Finance and Statistics, freyberger@uni-bonn.de.

TA: Marina Khismatullina, Institute for Finance and Statistics, marina.k@uni-bonn.de.

Lectures: Tuesdays and Thursdays from 10:00 am – 12:00 p.m. in room 0.017.

Office Hours: Please feel free to ask questions during the lectures or after class. I will also generally be available Mondays from 3:00 - 4:00 p.m. in my office (room 2.004). Please email in advance if you plan to stop by. You can also email me to set up appointments outside of this time.

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

In the first half of the semester we will relax many the underlying assumptions of the linear regression model to study various empirically relevant settings: endogenous regression models and corresponding instrumental variables (IV) estimators, time series models for dependent data and corresponding point estimators and adjusted variance estimators, and panel data models and the corresponding fixed effects estimator and clustered variance estimator.

In the second half of the semester we will cover nonlinear 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, and the generalized methods of moments. 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 references is: Hansen, B., Econometrics, <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. I will only count your best 4 scores. 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/>.

You can use MATLAB with the classroom license from the university, which allows 100 user to use MATLAB simultaneously. To do so, you have to be connected to the university network. You can find more information and download it here <ftp://ftp.wiwi.uni-bonn.de>. The username is

matlab and the password is *matlabr2019b*. You are required to uninstall the software at the end of the semester.

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

Midterm Exam: There will be a midterm exam on Tuesday, May 26, which will be held in class. Make sure you are available that day. By taking the midterm exam, you can earn up to 12 bonus points for the final.

Final Exam: The final exam will be two hours and will have 120 points in total. You can earn up to 20 bonus points through problem sets and the midterm.