Bard College Berlin
A LIBERAL ARTS UNIVERSITY

EC320 Econometrics
(Fall 2020)

Seminar Leader: Martin Binder
Course Times: Mon 14:00-15:30, Wed 14:00-15:30
Place: tba
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Course Description

Economics is in many ways an applied science deeply anchored in real-world phenomena that can be measured and quantified. In order to answer important quantitative questions, the economist needs to collect data and assess the empirical relationships between objects of interest. Since much economic data is observational, a main task of the econometrician is trying to find out whether events that are correlated also stand in causal relationship with each other and in what order of priority. In order to answer such questions, the economist needs the toolkit of multivariate regression analysis as well as a number of sophisticated techniques that expand on the simple linear regression model (time series and panel data models, vector-autoregressive models, non- and semiparametric econometric techniques, and various methods to assess the degree to which such models fit). This course expands on the basic statistics course by applying and developing core statistical notions within an economic context. It develops literacy in applied economics, and capacity to assess claims made in that field through critique of methods of econometric analysis. The course will introduce students to the statistical software package R, which will be used to analyze data applying the methods learned.

This course can also fulfill the "Quantitative Methods in Social Sciences" Module but is targeted primarily at economics majors and hence mathematically more demanding. As the class includes learning both statistical techniques and a programming language (R) in which to conduct such analyses, it will require a substantive amount of work outside of the classroom in order to successfully complete it.

Learning Outcomes

- Students understand the problem of causal inference in economics.
- Students understand and apply basic econometric techniques (mostly: OLS regression).
- Students understand and can criticize economic applications of such econometric techniques.
- Students are able to conduct basic econometric analysis with their own data.
- Students are familiarized with statistical analysis using the software package R.

Requirements

Prerequisites

It is absolutely essential that students taking this class have already successfully completed the classes "Statistics" and "Mathematics for economics". This course is a direct follow up of the statistics course and will rely heavily on concepts taught therein.

Textbooks/software

For this course, we will use the textbook "Introduction to Econometrics" by James H. Stock and Mark W. Watson (4th global edition, Pearson) and required readings will mostly be from this book. Students

will also need to either buy a copy of "Using R for Introductory Econometrics" by Florian Heiss or access the book freely online via the author's website (https://urfie.net). In addition, both R (https://www.r-project.org) and R Studio® (https://rstudio.com/products/rstudio/download/#download) software needs to be downloaded (freely) and installed on students' laptops. We will make heavy use of these inside and outside of the classroom.

Attendance

Attendance at ALL classes is expected. More than two absences (that is absences from two sessions of 90 minutes) in a semester can have a negative effect on the participation grade for the course. Bard College Berlin does not offer credit for any course in which a student has missed more than 30% of classes, regardless of the reasons for the absences, whether excused or unexcused. The full Bard College Berlin attendance policy can be found in the Student Handbook, Section 2.8.

SPECIAL CONSIDERATIONS FOR FALL 2020: Some students might need to begin the semester remotely due to travel restrictions caused by the pandemic. In addition, all students and instructors must refrain from in-person attendance if they are feeling ill. The instructor will make efforts to offer alternatives to in-person attendance where needed, including remote participation or asynchronous options.

Assessment

Assessment will be based on attendance, preparation for classes, regular and active participation, handing in problems sets, quizzes (possibly), as well as a mid-term (60 minutes) and a final empirical work where students will have to apply what they have learned to analyze data.

Grade breakdown

Seminar participation (20%)
Problem sets (group) (20%)
Quizzes (20%)
Outline for final project (10%)
Final empirical work (30%)

Policy on Late Submission of empirical work

Please note the policy from the Student Handbook on the submission of essays: *essays that are up to 24 hours late will be downgraded one full grade (from B+ to C+, for example). Instructors are not obliged to accept essays that are more than 24 hours late. Where an instructor agrees to accept a late essay, it must be submitted within four weeks of the deadline and cannot receive a grade of higher than C. Thereafter, the student will receive a failing grade for the assignment*.

Schedule and Course structure

Classes start on Monday, August 31 and run every Monday and Wednesday until Wednesday December 09, with fall break planned for Oct 19–25, 2020. Completion week will take place December 14–18. Note that c*lasses missed due to federal holidays will not be rescheduled*.

The following course structure is provisional in order to allow for flexibility. It is the students' responsibility to keep themselves informed of any changes to the schedule provided here. An up-to-date schedule will be maintained by the course management in our Google classroom system. Lecture slides and problem sets will be posted in Google classroom. Please sign in for the course, password will be given in the first class.

Week 1
Introduction
Regression in a nutshell
Reading Ch. 8 OpenIntro Statistics

Week 2
Recap Statistics
Reading: Stock/Watson, Chs. 2-3

Week 3
LAB: Introduction to R, Statistics in R
Reading: Heiss, Ch. 1

Week 4
Bivariate Regression
Reading: Stock/Watson, Ch. 4

Week 5
Hypothesis Testing
Reading: Stock/Watson, Ch. 5

Week 6
LAB: Regression Basics
Reading: Heiss, Ch. 2

Week 7
Causality
Reading: Ch. 1 Mastering Metrics (additional: Ch. 1 Natural experiments)

Week 8
Multiple Regression
Reading: Stock/Watson, Ch. 6

Week 9
LAB: Multiple Regression
Reading: Heiss, Chs. 3-4

Week 10
Dummy Variables and other topics
Reading: Stock/Watson, Ch. 8

Week 11
Assessing Regressions
Reading: Stock/Watson, Ch. 9

Week 12

LAB: Further topics
Reading: Heiss, Chs. 6-9 (excerpts)

Week 13
Panel Econometrics
Reading: Stock/Watson, Ch. 10

Week 14
LAB: Panel Regressions
Reading: Heiss, Ch. 13-14

Professionalism

Being a student is your full-time job and with it come a set of responsibilities and expectations, as with any other job. Maintaining a professional attitude towards your course of study is something that also prepares you for later work life. A professional attitude towards your studies is shown by coming to class on time, being prepared, being courteous to your teachers and fellow students. It is exhibited by writing your essays with care, actively participating in class, avoiding distractions (excessive bathroom breaks, using smartphones to check on irrelevant issues during class etc.), not missing classes except for the most dire of circumstances and in general by adapting to the rules of the course without trying to bargain for personal exceptions.

Ethics/Academic honesty

A core value of the academy is truth and the pursuit thereof. Nothing can shake the foundations of this pursuit as much as academic dishonesty as it undermines the trust that is indispensable to it. This is why I will not excuse any instance of academic dishonesty. Plagiarism, cheating during exams, copying homework assignments (or doing individual assignments with a classmate) all constitute violations of academic honesty and of the clause on “academic integrity” that each student has signed in the student handbook. They can lead to failing the course and will be reflected in the student’s record (having a record of academic dishonesty can make obtaining scholarships, achieving a study abroad place or admission to another program difficult if not outright impossible). Bard College Berlin maintains the staunchest regard for academic integrity and expects good academic practice from students in their studies. Instances in which students fail to meet the expected standards of academic integrity will be dealt with under the Code of Student Conduct, Section 14.3 (Academic Misconduct) in the Student Handbook.

(version: 02.03.2020)