

EC320 Econometrics

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Office Hours: by appointment

Course Description

Econometrics is the application of statistical methods to analyze economic data. Hence, econometrics is essential to every branch of applied economics. In particular, econometrics methods are used to estimate economic relationships, test economic theories, and evaluate policies. The primary objective of the course is to introduce students to basic econometric techniques (mainly ordinary least squares regression) and demonstrate how to apply these techniques to analyze empirical data. Another important objective is to develop the students' critical thinking about statistical inference (what can and cannot be inferred from the data). Finally, the course will enable students to apply their knowledge in analyzing field data. To this end, some of the classes are devoted to working with statistical software (Stata). At the end of the course, students will have to demonstrate their econometrics skills by analyzing field data, presenting them to the class, and write a short research paper.

Requirements

The prerequisites for this lecture are Statistics and Microeconomics. Additionally, it is expected that students will participate regularly, will actively engage in the discussions in class, and will follow all defined deadlines related to course assignments. It is important that students review the material covered in class at home, including solving again all the exercises that were completed in class.

Academic Integrity

Bard College Berlin maintains the highest standards of academic integrity and expects students to adhere to these standards at all times. 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.

Accommodations

Bard College Berlin is committed to inclusion and providing equal access to all students; we uphold and maintain all aspects of Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990, and the ADA Amendments Act of 2008, and Section 3 of the German Disability Equality Act of April 27, 2002 (Federal Law Gazette I p. 1468). If you have a disability, or think you may have a disability, please contact the Disability Accommodation Coordinator, Atticus Kleen, (accommodations@berlin.bard.edu) to request an official accommodation.

Requests for accommodations should be made as early as possible to ensure adequate time for coordination and planning. Please note that accommodations are not retroactive and may require advance notice to implement.

If you have already been approved for accommodations with the Disability Accommodation Coordinator, please arrange to meet with me outside of class so that we can develop an implementation plan.

Students may face extenuating circumstances related to various personal or external factors, which impact their academic performance. While these circumstances often do not fall within the legal framework of Disability Accommodations, Bard College Berlin is committed to supporting students experiencing such circumstances. A student needing a short extension or a replacement assignment because of an extenuating circumstance is encouraged to make arrangements directly with instructors if possible. If further support is needed, please visit the [Bard College Berlin Accessibility page](#). Questions about this process can be directed to James Harker (j.harker@berlin.bard.edu) or Maria Anderson-Long (m.andersonlong@berlin.bard.edu).

Attendance

Attendance at all classes is a crucial part of the education offered by Bard College Berlin. To account for minor circumstances, two absences from twice-per-week courses or the equivalent (e.g. one absence from a once-per-week course) should not affect the participation grade or require documentation.

Bard College Berlin may not offer credit for any course in which a student has missed more than 30% of classes, regardless of the reasons for the absences. The full Bard College Berlin attendance policy can be found in the Student Handbook, Section 2.8.

The use of cell phones is not allowed during classes. Please leave your cell phone in your bag during the classes.

Assessment

The assessment for weeks 1-7 consists of following parts:

- Regular and active participation
- Preparation for classes
- Possible quizzes, group problem sets, and small assignments
- Midterm exam (60 minutes)

The assessment for weeks 8-14 consists of following parts:

- Regular and active participation
- Preparation for classes
- Possible quizzes, group problem sets, and small assignments
- Final empirical work (including presentation)

The final assessment will be based on all the above-mentioned parts. The deadlines and dates of assessments are mentioned under “Schedule” and “Essay Deadlines” of this syllabus.

As part of the course each pair of students will conduct an independent (empirical) research project. The aim of the research project is to use field data to answer a well-defined research

question. The research project requires the students to obtain and analyze a relevant data set (from an online source or to get the data, e.g., conduct a survey). The students will have to present their project in a workshop ("final empirical work") held in the final two weeks of the semester. Finally, they will have to submit a short research paper ("final written empirical work").

Assignments

Two assessment parts can be considered as assignments, namely the possible quizzes, group problem sets, and small assignments, as well as the final empirical work which should all together not exceed the 7000-word limit. The small assignments should all together be 6-8 pages (3000-3500 words), and the final written empirical work should also have 6-8 pages (3000-3500 words).

Policy on Late Submission of Papers

Essays that are up to 24 hours late can be downgraded up to one full grade (from B+ to C+, for example). Instructors are not obliged to accept essays that are more than 24 hours late. Where a professor agrees to accept a late assignment, it should be submitted by the new deadline agreed upon by both parties. Thereafter, the student will receive a failing grade for the assignment. Grades and comments will be returned to students in a timely fashion. Students are also entitled to make an appointment to discuss essay assignments and feedback during instructors' office hours.

Students will receive feedback for their course work during and at the end of the semester. Students are entitled to make an appointment with an instructor to discuss seminar participation, or may be asked to meet with the instructor at any stage in the semester regarding class progress.

Grade Breakdown

The percentage grade allotted to each assessment part:

- Participation, preparation, and quizzes at the lecture for weeks 1-7 (15%)
- Midterm exam (35%)
- Participation, preparation, and quizzes at the lecture for weeks 8-14 (15%)
- Final empirical work: presentation (20%)
- Final empirical work: research paper (15%)

The first two points will be used to determine the midterm grades. The final grade will be determined using all five points. Attendance at all final presentations is mandatory to pass the course.

Schedule

The lecture takes place from 1 September 2026 to 10 December 2026, every Tuesday and Thursday, except on 20 and 22 October 2026 (Fall Break). The time slot is 10:45 to 12:15. Following table includes more information the individual sessions (subject to change):

Session	Date	Contents	Literature
1	01.09.2026	Introduction: causal inference, data, and the research process	Carter Hill et al. (2018)
2	03.09.2026	Introduction: causal inference, data, and the research process	Carter Hill et al. (2018)
3	08.09.2026	Repetition and extensions (Statistics) a. Review of probability b. Review of statistics (including statistical tests)	Carter Hill et al. (2018)
4	10.09.2026	Repetition and extensions (Statistics) a. Review of probability b. Review of statistics (including statistical tests)	Carter Hill et al. (2018)
5	15.09.2026	Repetition and extensions (Statistics) a. Review of probability b. Review of statistics (including statistical tests)	Carter Hill et al. (2018)
6	17.09.2026	Repetition and extensions (Statistics) a. Review of probability b. Review of statistics (including statistical tests)	Carter Hill et al. (2018)
7	22.09.2026	The simple linear regression model a. Estimating the coefficients, least square assumptions, non-linear transformations, etc. b. Applications using a statical software	Carter Hill et al. (2018)
8	24.09.2026	The simple linear regression model a. Estimating the coefficients, least square assumptions, non-linear transformations, etc. b. Applications using a statical software	Carter Hill et al. (2018)
9	29.09.2026	The simple linear regression model a. Estimating the coefficients, least square assumptions, non-linear transformations, etc. b. Applications using a statical software	Carter Hill et al. (2018)
10	01.10.2026	The simple linear regression model a. Estimating the coefficients, least square assumptions, non-linear transformations, etc. b. Applications using a statical software	Carter Hill et al. (2018)
11	06.10.2026	Modeling issues a. Prediction, rescaling, and non-linear transformation	Carter Hill et al. (2018)
12	08.10.2026	Modeling issues a. Prediction, rescaling, and non-linear transformation	Carter Hill et al. (2018)
13	13.10.2026	Predictions, goodness of fit, and modeling issues	Carter Hill et al. (2018)
14	15.10.2026	Predictions, goodness of fit, and modeling issues	Carter Hill et al. (2018)
	20.10.2026 & 22.10.2026	Fall Break (19 October – 25 October)	
15	27.10.2026	The multiple linear regression model a. Estimation, goodness of fit, estimating joint tests, non-linearities b. Using indicator variables, heteroskedasticity	Carter Hill et al. (2018)

		c. Endogenous regressions and instrumental variables	
16	29.10.2026	The multiple linear regression model a. Estimation, goodness of fit, estimating joint tests, non-linearities b. Using indicator variables, heteroskedasticity c. Endogenous regressions and instrumental variables	Carter Hill et al. (2018)
17	03.11.2026	The multiple linear regression model a. Estimation, goodness of fit, estimating joint tests, non-linearities b. Using indicator variables, heteroskedasticity c. Endogenous regressions and instrumental variables	Carter Hill et al. (2018)
18	05.11.2026	The multiple linear regression model a. Estimation, goodness of fit, estimating joint tests, non-linearities b. Using indicator variables, heteroskedasticity c. Endogenous regressions and instrumental variables	Carter Hill et al. (2018)
19	10.11.2026 Day of Assessment	Midterm exam (60 minutes)	
20	12.11.2026	Hypothesis testing a. Simple tests, tests of a linear combination of parameters	Carter Hill et al. (2018)
21	17.11.2026	Hypothesis testing a. Simple tests, tests of a linear combination of parameters	Carter Hill et al. (2018)
22	19.11.2026	Binary dependent variable models	Carter Hill et al. (2018)
23	24.11.2026	Binary dependent variable models	Carter Hill et al. (2018)
24	26.11.2026	Estimation issues: (e.g., Regression discontinuity, instrumental variables)	Carter Hill et al. (2018)
	30.11.2026 Deadline for the submission of the final written empirical work		
25	01.12.2026	Estimation issues: (e.g., Regression discontinuity, instrumental variables)	Carter Hill et al. (2018)
26	03.12.2026 Day of Assessment	Presentations of empirical work and dealing with the practicality of econometrics analysis.	
27	08.12.2026 Day of Assessment	Presentations of empirical work and dealing with the practicality of econometrics analysis.	

28	10.12.2026	Wrap-up of Lecture, Summary of Stata Codes, and Outlook	
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The Fall semester runs from Monday, August 31 and runs until Friday, December 18, with the Fall break planned from Monday, October 19, - Sunday, October 25, 2026.

- Normal course sessions end on Friday, December 11.
- Completion week is from Monday, December 14 through Friday, December 18.
- Make-up classes and final exams can take place in completion week.
- Students are required to be on campus during completion week.

Classes missed due to federal holidays will not be rescheduled.

Essay Deadlines

The following deadlines must be considered for the assessment:

- 30 November 2026: Submission of final written empirical work
- 3 & 8 December 2026: Presentation of final empirical work

Deadlines for quizzes, group problem sets, and small assignments will be announced during the lecture and communicated through email and the course calendar in Google classroom.

Grades Submission

All grades are submitted digitally to the Registrar's Office.

Library and Book Purchase Policies

The main textbook for the lecture is "Principles of Econometrics" (Fifth Edition) by Carter Hill, Griffiths, and Lim (2018). It is recommended that students purchase this book. Several copies are also available in the BCB library.

Another important book for the lecture is "Stata: A Really Short Introduction" by Felix Bittmann (2019). It is recommended that students purchase this book.

Additionally, the practical exercises in the lecture and the assessment require that students have access to the statistical software Stata. It is recommended that students purchase a student's license for Stata.

Other reading materials are available online under open-access licenses and will be announced during the lecture.

Three excellent textbooks that we will also use (not as main textbooks but we use their explanations) are:

- Causal Inference: The Mixtape (2021) by Scott Cunningham, Yale University Press.
- Mastering Metrics: The Path from Cause to Effect (2014) by Joshua D. Angrist and Jörn-Steffen Pischke, Princeton University Press.
- A Guide to Econometrics by Peter Kennedy, Wiley-Blackwell.