

Econometrics for BSc Students, 44720

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Classes: Sundays and Tuesdays 15:00 - 16:30

Office Hours: by appointment.

Teaching Assistants:

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1 Course Description

Econometrics for BSc students is an introductory course designed to familiarize undergraduate students with regression methods for analyzing economic data. In this course, students learn practical statistical analysis, distinguish between correlation and causality, estimate econometric models, test hypotheses, and interpret regression results. The course aims to provide students with a solid theoretical foundation in introductory-level econometrics, equipping them with estimation tools and critical skills for evaluating empirical studies in economics.

2 Prerequisites

Students need to be familiar with basic economic theory (Principals of Economics) and have a basic knowledge of probability, statistics, and calculus.

3 Text Book

Required: Jeffrey M. Wooldridge, “Introductory Econometrics: A Modern Approach”, 5th edition, South-Western College Pub.

Optional: Angrist, J. D., & Pischke, J. S. (2014). Mastering Metrics: The path from cause

to effect. Princeton University Press.

4 Important Dates

Quiz 1:	Tuesday, 8 Aban, 3 PM
Midterm:	Thursday, 8 Azar, 9 AM
Quiz 2:	Tuesday, 4 Dey, 3 PM
Project Proposal Approval:	Tuesday, 11 Dey
Final:	Thursday, 4 Bahman, 3 PM
Project Final Report:	Friday, 12 Bahman

5 Course Outline

1. Introduction
2. Review of Probability
3. Review of Statistics
4. Simple Linear Regression Model
5. Multiple Regression Model
6. Inference in Multiple Regression Model
7. Violations of Multiple Regression Assumptions
8. Dummy Variables
9. Introduction to Difference-in-Differences (DiD) Estimation
10. Introduction to Instrumental Variable (IV) Estimation
11. Introduction to Regression Discontinuity Design (RD)

6 Grading

Course grades will be based on:

1. Homework: 20%
2. Quiz: 10%
3. Midterm Exam: 30%
4. Final Exam: 30%
5. Class Participation: 10%
6. Project: 10% (bonus)

7 Homework Policy

- You will have almost one homework per week during the semester.
- Homeworks will be graded mainly by effort. We will assign one among high and low effort to each of the problems in your homework and then use (weighted) average among all questions as your homework grade.
- A high effort work will receive full credit while low effort work will receive half credit. To achieve a high effort:
 1. Try and show your effort for the questions.
 2. Ensure your answer is relevant.
- Homeworks should be submitted before the deadlines, and **NO LATE problem sets will be accepted.**

Group Work

- You may work in groups, but each member of a group should submit their own write-up.
- In the case of group collaboration, write down the names of your group members. The group size should not exceed 3 persons.

8 Empirical Project Guidelines

1. Project Type:

- Conduct an empirical project using one of the following software tools: STATA, R, or Python.

2. Subject Selection:

- Choose a relevant subject related to any area of economics that allows for empirical analysis.

3. Proposal:

- Write a two-page proposal for your project.
- Outline the research question, data sources, methodology, and expected results.
- Obtain approval from the course instructor before to be eligible for full credit (10%).

4. Approval Deadline:

- If your subject is not approved by the specified date, your maximum grade (bonus) for the project will be 5%.

5. Final Report Submission:

- Submit your final project report as a PDF file before ...
- The final report should be written in FARSI.