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Office Hour: Mondays, 9pm on zoom
Website: <https://purdue.brightspace.com>

CRN: 24485 (section MY1)
Asynchronous Online Course
2 Credit Hours
Spring 2021 ECON 57400-MY1 DIS

Course Description

This masters-level course in econometrics covers several empirical methods commonly used in applied microeconomic analysis including matching, instrumental variables, regression discontinuity, difference in differences, and fixed effects. Emphasis is placed on the identification strategy used to obtain an estimate of the causal effect when the researcher can only use observational data. Effective data visualization is also emphasized.

Learning Outcomes

By the end of the course, you are expected to be able to:

- Demonstrate an understanding of selection bias as well as the theoretical foundations of matching, instrumental variables, regression discontinuity, and panel data methods.
- Use Stata to estimate the causal effects of treatments using these methods.
- Produce professional-looking tables and figures.
- Interpret estimation results from common microeconomic methods.

Prerequisites

Students are expected to have completed ECON 562 Econometrics I and ECON 572 Econometrics II. We will use matrix algebra and maximum likelihood tools. Taking this course without familiarity with linear regression, matrix algebra, and maximum likelihood estimation would put you at a real disadvantage.

Course Topics

1. The Selection Problem
2. Matching Methods
3. Organizing, Analyzing, and Visualizing Data
4. Instrumental Variables
5. Regression Discontinuity
6. Panel Data Methods
7. Sample Weights and Standard Errors

Textbook

There is no required textbook. I provide comprehensive course notes and other reading assignments that cover the relevant material. For those interested in an optional textbook, I suggest Angrist, J.D. and J-S Pischke (2009) “Mostly Harmless Econometrics: An Empiricist's Companion.”

Course Website

This course uses Brightspace for course announcements, assignments, discussion, exams, and to provide you with video lectures. I encourage you to post your course-related questions to the discussion board instead of emailing me. Rather than immediately answering questions on the discussion board, I wait to respond to allow students the opportunity to respond first. The web address is <https://purdue.brightspace.com>.

Required Software

Completing assignments and the exam will require using Stata, a statistical software package commonly used by economists and analysts. Purdue provides a free Stata/SE download/license to students through [ITaP Student Software](#). Krannert provides free Stata access to students through the RemoteApp (<http://arcc.krannert.purdue.edu>). If you have any difficulty installing Stata properly, you may contact the Krannert Computing Center (kcchelp@purdue.edu) for help.

Assignments

Assignments are a mix of mathematical, theory, and data analysis questions. Working with others on assignments is encouraged, but each student must turn in his or her own individual copy. Do not copy/paste from other students' answers; you must write your own. If I believe you are copying work from others, all those involved will receive no credit for the assignment. To receive credit, assignments must be handed in by the deadline.

Exam

The exam will be available for download and then students will upload their answers to the course website within the time limit. Students will either need to type their answer or will need a way to scan their hand-written answers in order to upload them to the course website. Students are allowed to use their notes, the course website, and any other materials they choose while completing the take-home exam. Students are not allowed to seek or accept help with exam questions from any other person.

Student Evaluation

Student evaluation will be based on 7 assignments and an exam. The letter grade will be based on the final score. The final score is the weighted sum of the average assignment score and the final exam score. The weights used in computing the final score are:

- Assignments (70%)
- Final Exam (30%)

Grading Scale

At the end of the semester, letter grades will assigned based on the final score according to the following scale:

A+	98 – 100
A	93 – 98
A–	88 – 93
B+	81 – 88
B	75 – 81
B–	70 – 75
C+	65 – 70
C	60 – 65
C–	55 – 60
D	45 – 55
F	0 – 45

Incomplete

A grade of incomplete is given only if all three of the following conditions are satisfied: (1) the student's course work is interrupted by unavoidable absence or other causes beyond the student's control, (2) the work was passing at the time it was interrupted, (3) completing the work does not require the student to repeat the course

Student Code of Honor

The purpose of the Purdue University academic community is to discover and disseminate truth. In order to achieve these goals, the university commits itself towards maintaining a culture of academic integrity and honesty. For this to be possible, self-discipline and a strong desire to benefit others must be present within each individual. Therefore, we students must follow the Regulations Governing Student Conduct of Purdue University out of a sense of mutual respect, rather than out of fear of the consequences of their violation.

Academic Integrity

Academic integrity is one of the highest values that Purdue University holds. Cheating, plagiarism, or knowingly furnishing false information to the University are examples of academic dishonesty. If I find that a student cheated on an assignment, that student will receive no credit for the assignment. If I find that a student cheated on the exam (either receiving or giving help), the students involved will receive no credit for exam and the student will be reported to university administrators. Students are encouraged to alert university officials to potential academic dishonesty by either emailing integrity@purdue.edu or by calling 765-494-8778. While information may be submitted anonymously, the more information that is submitted provides the greatest opportunity for the university to investigate the concern.

Online Behavior (netiquette)

All opinions and experiences, no matter how different or controversial, must be respected in the tolerant spirit of academic discourse. You are encouraged to comment, question, or critique an idea, but not to attack an individual. Please consider that sarcasm and humor can be misconstrued in online interactions and generate unintended conflict. Working as a community of learners, we can build a polite and respectful course ambience. Disruptive behavior on the discussion board or towards others in the class is not tolerated and is grounds for being removed from the course. Please read the netiquette guidelines for this course:

- Don't dominate online discussions. Give other students an opportunity to contribute.
- Never use offensive language. Present ideas appropriately.
- Be cautious in use of internet language (e.g., capitalizing suggests shouting).
- Keep an open-mind and be willing to express your minority opinion.
- Think and edit before you post your comment/response to the discussion board.

Course Evaluation

During the last week of the course, you will be provided with an opportunity to give feedback on this course and your instructor. Purdue uses an online course evaluation system. You will receive an official email from evaluation administrators with a link to the online evaluation site. Your participation is an integral part of this course, and your feedback is vital to improving education at Purdue University. I urge you to participate in the evaluation system.

Diversity & Inclusion Statement

Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life. Purdue University prohibits discrimination against any member of the University community on the basis of race, religion, color, sex, age, national origin or ancestry, genetic information, marital status, parental status, sexual orientation, gender identity and expression, disability, or status as a veteran. Any student who believes they have been discriminated against may visit www.purdue.edu/report-hate to submit a complaint to the Office of Institutional Equity. Information may be reported anonymously.

Use of Copyrighted Materials

The video lectures, course notes, readings, assignments and exam that are presented as part of this course are protected by copyright law. Always assume the materials presented by an instructor are protected by copyright unless the instructor has stated otherwise. Students enrolled in, and authorized visitors to, Purdue University courses are permitted to take notes, which they may use for individual/group study or for other non-commercial purposes reasonably arising from enrollment in the course or the University generally. No individual is permitted to sell or otherwise barter notes or course materials, either to other students or to any commercial concern, without the express written permission of the course instructor.

Academic Guidance in the Event You are Quarantined

If you become quarantined or isolated at any point during the semester you will have access to an Academic Case Manager who can provide you academic support. Your Academic Case Manager can be reached at acmq@purdue.edu and will provide you with general guidelines and resources. Importantly, if you find yourself too sick to progress in this course, notify your academic case manager and notify me via email. We will make arrangements based on your particular situation.

Protect Purdue Pledge

The Protect Purdue Pledge, is campus policy and as such all members of the Purdue community must comply with the required health and safety guidelines. Any student who has substantial reason to believe that another person in a campus room is threatening the safety of others by not complying with the Protect Purdue Pledge (e.g., not wearing a mask) may leave the room without consequence. The student is encouraged to report the behavior to and discuss next steps with their instructor.

Accessibility and Accommodations

Purdue University strives to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, you are welcome to let me know so that we can discuss options. You are also encouraged to contact the Disability Resource Center at: drc@purdue.edu or by phone: 765-494-1247.

In Case of Emergency

In the event of a major emergency or other disruption, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances. Relevant changes to this course will be posted onto the course website or can be obtained by contacting the instructors or teaching assistants via email. You are expected to read your @purdue.edu email on a frequent basis.