

Economics 715(L01) (Ph D Econometrics II)

Instructor: Atsuko Tanaka
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Lecture Location: SS 403
Lecture Days/Time: MW 14:00 – 15:15

Office: SS 432
Office Hours: MW 15:15-16:00

Winter 2018

Course Description:

This is the second course in the PhD sequence in econometrics. The course will focus on identification, estimation of and inference about treatment effects.

Course Objectives/Learning Outcomes:

By the end of the course students should be able to formulate credible identification, estimation and inferential strategies to be applied to economically interesting causal questions.

Course Outline:

This course explores how to use statistical procedures in empirical studies of economic models. We will cover a number of topics that are important in applied research. The main theme of the course is “Treatment Effects,” as we will consider estimation of various types of treatment effects (e.g. causal effects of education on earnings).

Prerequisites/corequisites:

Econ 705

Required Textbook(s):

Mostly Harmless Econometrics (Angrist and Pischke)

Recommended Textbook(s):

Mastering ‘Metrics The Path from Cause to Effect (Angrist and Pischke)
Econometric Analysis of Cross Section and Panel Data (Wooldridge)
Microeconometrics (Cameron and Trivedi)

Books on Reserve:

Mostly Harmless Econometrics (Angrist and Pischke)
Econometric Analysis of Cross Section and Panel Data (Wooldridge) **Optional Heading:**

Detailed Course outline:

N.B. The details of outline are subject to change.

1. Introduction (L.1)
 - a. Brief discussion on how to choose a research topic

- b. Data

Part I: Reduced-form Method: Identification and Estimation of Causal Effects of a Program

2. Review of Key Concepts in Econometric Theory (L.2)
 - a. What is the “problem of identification”?
 - b. Identification and Statistical Inference: Definitions and contrasting examples.
 - c. Causal Relationships in Economics: The “Experimental Ideal.”
 - d. Selection bias. Reflection Problem.

Textbook Readings: AP Chapters 1-2. Manski pp 1-11. Wooldridge Ch. 1
3. Regression (L.3)
 - a. What is regression? Foundations.
 - b. Why regression? Treatment effects.
 - c. Identification.
 - d. Matching estimators.
 - e. Standard Errors.
 - f. Partial Identification and Estimation of Bounds
 - g. Applications.
 - h. Issues: Heterogeneous treatment effects, Omitted variables, Measurement error.

Textbook Readings: AP Chapters 3 and 8. Wooldridge Ch. 4,
4. Instrumental Variables (L.4)
 - a. Motivation: When and Why use IV?
 - b. Identification.
 - c. Estimation and Inference.
 - d. Other Issues: Binary instruments and continuous instruments. Weak Instruments, many instruments. Placebo tests. Heterogeneity. Heckman and Urzua vs Angrist and Imbens (LATE) debate

Textbook Readings: AP Chapter 4, Wooldridge Ch. 5
5. Panel Data/Fixed Effects/Differences-in-Differences (L.5)
 - a. Motivation:
 - i. Why is Panel Data Useful? Identification.
 - ii. Why and when use these methods? Relation between DID and FE, Relation between RD and IV.
 - b. Estimation and Inference.
 - c. Other Issues.
 - d. Problem Set I

Textbook Readings: AP Ch. 5, Wooldridge Ch. 6, 10-11, 21, Manski Ch. 7.
6. Regression Discontinuity (L.6)
 - a. Motivation: Why and when use these? Relation between DID and FE, Relation between RD and IV.
 - b. Identification.
 - c. Estimation and Inference.
 - d. Other Issues.

Textbook Readings: AP Ch. 6, Wooldridge Ch. 21

In-class Midterm Exam (Monday, March 5)

7. Brief introduction to Structural Estimation of Behavioral Models (L.7)
 - a. Motivation: Why structural models? Estimation of a policy that has never been implemented

Journal Articles:

- Chetty, R. (2008) "Sufficient Statistics for Welfare Analysis: A Bridge between Structural and Reduced-Form Methods". Annual Review of Economics, Annual Reviews, vol. 1(1), pages 451-488, 05.

8. Nonstandard Error Issues (L.8)
Textbook Readings: AP Ch. 8
9. Heterogenous Treatment Effects (L.9)
 - a. Propensity Score Matching
 - b. IV with Heterogenous Treatment Effects
 Textbook Readings: AP Ch. 3, Wooldridge Ch. 21
10. In-Class Presentation
 - a. Students present their term project

In-class Final Exam (Wednesday, April 11)

Desire2Learn:

This course will make use of the Desire2Learn (D2L) platform. Students who are registered in the course can log on at <http://d2l.ucalgary.ca> through their student centre. Please note that D2L features a class e-mail list that may be used to distribute course-related information. These e-mails go to your University of Calgary e-mail addresses only.

Grade Determination and Final Examination Details:

MIDTERM EXAM (March 5)	30%
FINAL EXAM (April 11)	30%
TERM PROJECT (Replication Project)	40%
	100%

Grading Scale

A+	95 – 100	B	73 – 76	C-	60 – 62
A	85 – 94	B-	70 – 72	D+	56 – 59
A-	80 – 84	C+	67 – 69	D	50 – 55
B+	77 – 79	C	63 – 66	F	0 – 49

A passing grade on any particular component of the course is not required for a student to pass the course as a whole.

As per the Writing Across the Curriculum Statement in the Calendar, writing and grading thereof will be a factor in the evaluation of student work.

Any student work which remains undistributed after the last day of classes will be available to students through the instructor's office during his office hours.

The final examination will be comprehensive, scheduled by the Registrar, held in a classroom, and last 2 hours. If a student cannot write their final exam on the date assigned by the Registrar's Office, they need to apply for a deferred exam www.ucalgary.ca/registrar/exams/deferred_final. Under no circumstance will this be accommodated by the Department.

Tests and exams will not involve multiple choice questions. Non-programmable calculators WILL be allowed during the writing of tests or final examinations.

THERE WILL BE NO MAKEUP OR DEFERRED QUIZZES/TESTS/EXAMS under any circumstances, nor may the quizzes/tests/exams be written early. Students unable to write the quizzes/tests/exams because of documented illness, family emergency, religious observance, or university-sanctioned event will have the weight shifted to the final examination; otherwise a grade of zero will be assigned.

Reappraisal of Grades and Intellectual Honesty:

For reappraisal of graded term work, see Calendar I.2

<http://www.ucalgary.ca/pubs/calendar/current/i-2.html>

For reappraisal of final grade, see Calendar I.3

<http://www.ucalgary.ca/pubs/calendar/current/i-3.html>

Statement of Intellectual Dishonesty, see Calendar K.4

<http://www.ucalgary.ca/pubs/calendar/current/k-4.html>

Plagiarism and Other Academic Misconduct, , see Calendar K.5

<http://www.ucalgary.ca/pubs/calendar/current/k-5.html>

Academic Accommodation:

Students seeking an accommodation based on disability or medical concerns should contact Student Accessibility Services; SAS will process the request and issue letters of accommodation to instructors. For additional information on support services and accommodations for students with disabilities Visit www.ucalgary.ca/access/.

Students who require an accommodation in relation to their coursework based on a protected ground other than disability should communicate this need in writing to their Instructor. The full policy on Student Accommodations is available at <http://www.ucalgary.ca/policies/files/policies/student-accommodation-policy.pdf>

Important Dates:

Please check: <http://www.ucalgary.ca/pubs/calendar/current/academic-schedule.html>

Student Organizations:

Faculty of Arts Students' Association (F.A.S.A.):

Economics Department Representative

Office: SS 803, E-mail: econrep@fasaucalgary.ca and Web: www.fasaucalgary.ca.

Society of Undergraduates in Economics:

<https://www.ucalgarysue.com/>.

Society of Undergraduates in Economics is a student run organization whose main purpose is to assist undergraduate economics students to succeed both academically and socially at the University of Calgary. Services include access to the exam bank, career partnerships with the Career Centre through hosting industry nights and information sessions, recognizing achievements in teaching, and organizing social events for members. They invite you to join by contacting SUE at societyofundergradsineconomics@gmail.com.

Faculty of Arts Program Advising and Student Information Resources:

- Have a question, but not sure where to start? The Arts Students' Centre is your information resource for everything in Arts! Drop in at SS102, call them at 403-220-3580 or email them at artsads@ucalgary.ca. You can also visit the Faculty of Arts website at <http://arts.ucalgary.ca/undergraduate> which has detailed information on common academic concerns, including program planning and advice.
- For registration (add/drop/swap), paying fees and assistance with your Student Centre, contact Enrolment Services at 403-210-ROCK [7625] or visit them in the MacKimmie Library Block.
- Online writing resources are available at <http://www.ucalgary.ca/ssc/resources/writing-support>.

Evacuation Assembly Point:

In case of an emergency evacuation during class, students must gather at the designated assembly point nearest to the classroom. The assembly point for this classroom is Professional Faculties - Food Court.

Safewalk:

The Safewalk program provides volunteers to walk students safely to their destination anywhere on campus. This service is free and available 24 hrs/day, 365 days a year. **Call 403-220-5333.**

A/T

2017-11-30