

Economics 497(L01) Econometrics II

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Lecture Location: EDC 057
Lecture Days/Time: Tuesday/Thursday 11-12:15

Office: SS 406

Office Hours: 1-2pm Tuesday; 3-4 pm Thursday

Winter 2019

Course Description:

The purpose of this course is to advance students understanding of theoretical and applied issues in econometrics. Providing students with a strong foundation to carry through with graduate level study in econometrics and learn the skills sought after in the business community. The course takes a broad approach to topics covered but will also focus on current exciting econometric issues. Students are expected to have working knowledge of some econometric software. We will also discuss prediction and classification models that are used in Data Science. By the end of the class students will have extensive experience in applying different data analysis methods, and in using experimental and nonexperimental research designs to make inferences.

Course Objectives/Learning Outcomes:

The primary objective of the course is to provide students with an in depth theoretical and practical knowledge in advanced econometrics. Besides focusing on econometric theory, students will also have 'hands-on' experience communicating how advanced econometrics concepts are applied in academic and business settings.

Course Outline:

1. Introduction - review of statistics; confidence in intervals; power analysis
2. Inference in a randomized controlled trial (RCT) setting; experimental design; noncompliance and other problems of inference;
3. Linear regression modeling; properties of regression; omitted variables; decomposition techniques; problems of inference
4. Fixed effects; random effects; correlated random effects models
5. Non-experimental research designs I: difference in differences
6. Matching and reweighting – alternatives to regression
7. Non-experimental research designs II: instrumental variables
8. Non-experimental research designs III: regression discontinuity

9. Nonlinear models: multinomial models; logit and related models

10. Prediction and classification models

11. Forecasting (time permitting)

Prerequisites/corequisites:

Econ 497 starts at a level that assumes familiarity with the material covered in Econ 495 and Stats 213, including proficiency at mathematical statistics and calculus. Presentations will use matrix algebra. Computers in the Tri-Faculty computer lab (SS018) are equipped with STATA software.

Required Textbook(s):

Angrist, J.D. and Pischke, J., *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton University Press.

Gareth James, Daniela Witten, Trevor Hastie and Robert Tibshirani. *An Introduction to Statistical Learning with Applications in R (ISLR)*. This book is available for free at <http://www-bcf.usc.edu/~gareth/ISL/> : this site also other useful related materials.

Recommended Textbook(s):

Wooldridge, J.M., *Introductory Econometrics: A Modern Approach*, South-Western.

Kennedy, Peter, *A Guide to Econometrics*, 6th Edition, Blackwell Publishing.

Books on Reserve:

Morris H. DeGroot, Mark J. Schervish *Probability and Statistics*, Pearson/2010/4th Edition Hardcover

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	30%
FINAL EXAMINATION	40%
PRESENTATIONS	20%
ASSIGNMENTS	<u>10%</u>
	100%

Grading Scale

A+	97 – 100	B	79 – 83	C-	60 – 65
A	92 – 96	B-	76 – 78	D+	56 – 59
A-	89 – 91	C+	73 – 75	D	50 – 55
B+	84 – 88	C	66 – 72	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 the instructor's 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.

The exact date for the in-class midterm will be announced at least one week in advance.

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 Accommodations:

The student accommodation policy can be found at: ucalgary.ca/access/accommodations/policy.

Students needing an accommodation because of a disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities ucalgary.ca/policies/files/policies/student-accommodation-policy.

Students needing an Accommodation based on a Protected Ground other than disability should communicate this need, preferably in writing, to the course instructor.

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 events such as Industry Night and information sessions, mentorship programs, and 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 Scurfield Hall - Atrium.

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.**

Freedom of Information and Protection of Privacy (FOIP) Act:

Personal information is collected in accordance with FOIP. For more information, see <http://www.ucalgary.ca/legalservices/foip/foip-hia>.

Internet and Electronic Communication Device information:

The use of cell phones for any purpose in class is prohibited. Computers and tablets may be used for note-taking only.