

Economics 395 (L01) (Introduction to Econometrics)

Instructor: Moshe Lander
Email: moshe.lander@ucalgary.ca

Lecture Location: AD 142
Lecture Days/Time: TR 12:30 – 13:45

Office: SS 338
Office Hours: TR 09:30 – 10:30

Winter 2024

Course Description:

Introduction to the use of econometric principles in economics. Building on the fundamental mechanics of statistics and probability, students will become familiar with the empirical application of econometrics to problems of measurement in economics. The course focuses on statistical reasoning, the gathering and manipulation of economic data, and the use of standard econometric software. The core of this course is based on the principles from random variables, expectation theory, and probability theory. The two-variable and multivariate linear regression models are introduced, developed and evaluated. The overriding purpose of the course is to provide the student with a strong intuitive understanding of how and why econometrics works and the empirical applications to support and strengthen this understanding.

Course Learning Outcomes:

Students who successfully complete this course will:

- Know and understand the Simple Linear Regression Model. Be able to transform a simple linear economic model to an econometric model – the role of the error term. Know the assumptions of the simple linear regression model and why we need them.
- Have an intuitive understanding of the Gauss Markov Theorem.
- Know the sampling properties of the Least Squares Estimators- expected value, variance.
- Interval estimation and hypothesis testing for the least squares estimator.
- Understand the purpose and importance of a multi-variable regression model.
- Know how to carry out hypotheses testing and model evaluation in a multi-variable setting.
- Model specification and testing.
- Understand the serious problems of heteroskedasticity and methods for correction.
- Understand the importance and use of binary variables. A quantitative measure for qualitative factor.
- Understand the linear probability model and applications.
- Model Specification: Issues arising in empirical application of regression models, testing functional specification.
- Understand proxy variables, functional form, and model specification.
- Have a knowledge of the use of econometric software (Excel, Python, or Stata) in generating empirical estimates.

Prerequisites/Corequisites:

ECON 201, ECON 203, STAT 213 and STAT 217.

Required Textbook:

Wooldridge, J. *Introductory Econometrics: A Modern Approach*, 7th Edition. Cengage Learning, 2020.

Required Access to Technology:

Excel, Python or Stata

Desire2Learn:

This course makes 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 email list that may be used to distribute course-related information. These emails go to your University of Calgary email addresses only.

Labs:

You are expected to attend the weekly lab section to which you have been assigned. During labs, the TA discusses pre-assigned questions and additional material relevant to the course that is not covered in lectures. All labs are in SS 20: Th 17:00 – 17:50 (LAB 1) and Tu 17:00 – 17:50 (LAB 2).

PASS:

Econ 395 is part of the Peer Assisted Study Session ("PASS") program funded by the Student Success Centre and the Department of Economics. PASS sessions for Econ 395 are offered weekly during which students work collaboratively, guided by a PASS Leader, on difficult concepts. PASS offers alternative approaches and strategies to develop an understanding of the course material. The PASS Leader for Econ 395 has recently taken the course, attends lectures, and has been trained to facilitate collaborative learning and group study. PASS sessions are about students working together to understand course material and develop better academic habits. Students who attend PASS regularly have higher course GPAs and lower DFW rates than those who do not.

Grade Determination:

ASSIGNMENTS (3 x 10% each)	30%
MIDTERMS (1 x 20% each)	20%
FINAL	50%
	<hr/> 100%

Tentative Lecture Schedule, Assigned Readings and Key Dates:

Date	Topic	Coverage
January 9	Introduction	Chapter 1
January 11	Basic Mathematical Tools	Appendix A
January 16	Fundamentals of Probability	Appendix B
January 18	Fundamentals of Mathematical Statistics	Appendix C
January 23	The Simple Regression Model	Chapter 2
January 25	The Simple Regression Model	Chapter 2
January 30	The Simple Regression Model	Chapter 2
February 1	ASSIGNMENT 1 DUE	Appendices A – C
February 1	Multiple Regression Analysis: Estimation	Chapter 3
February 6	Multiple Regression Analysis: Estimation	Chapter 3
February 8	Multiple Regression Analysis: Estimation	Chapter 3
February 13	Multiple Regression Analysis: Inference	Chapter 4
February 15	Multiple Regression Analysis: Inference	Chapter 4
February 27	ASSIGNMENT 2 DUE	Chapters 2 – 4
February 27	TBA	
February 29	MIDTERM (in class)	Appendices A – C, Chapters 2 – 4
March 5	Multiple Regression Analysis: OLS Asymptotics	Chapter 5
March 7	Multiple Regression Analysis: Further Issues	Chapter 6

March 12	Multiple Regression Analysis: Further Issues	Chapter 6
March 14	Multiple Regression Analysis: Qualitative Information	Chapter 7
March 19	Multiple Regression Analysis: Qualitative Information	Chapter 7
March 21	Heteroscedasticity	Chapter 8
March 26	Heteroscedasticity	Chapter 8
March 28	TBA	
April 2	More on Specification and Data Issues	Chapter 9
April 4	More on Specification and Data Issues	Chapter 9
April 7	ASSIGNMENT 3 DUE	Chapters 5 – 9
April 7	Review	Appendices A – C, Chapters 2 – 9
TBD	FINAL EXAM	Appendices A – C, Chapters 2 – 9

Examination Details:

- Tests and exams WILL NOT involve multiple choice questions.
- Programmable calculators, cellphones, textbooks, course notes and other electronic devices are not allowed during the writing of midterm or final exams. You are reminded that simply being able to access your cellphone during an exam is academic misconduct.

Grading Policies:

The official grading system will be used. See <http://www.ucalgary.ca/pubs/calendar/current/f-1-1.html>.

Students must receive a passing grade on the final exam to pass the course. Students committing academic misconduct during the final exam will not receive a passing grade for the course.

If a student's letter grade on the final exam exceeds their midterm(s) letter grade, the weight of the midterm(s) is (are) transferred to the final exam. The student must have written the midterm(s) or provided supporting documentation for the absence(s).

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. See <https://www.ucalgary.ca/pubs/calendar/current/e-2.html>.

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.

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 <https://www.ucalgary.ca/pubs/calendar/current/g-3-4.html>. Under no circumstance will this be accommodated by the Department.

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.

Reappraisal of Grades:

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>

Academic Misconduct and Intellectual Honesty:

Academic Misconduct refers to student behavior that compromises proper assessment of students' academic activities and includes: cheating; fabrication; falsification; plagiarism; unauthorized assistance; failure to comply with an instructor's expectations regarding conduct required of students completing academic assessments in their courses; and failure to comply with exam regulations applied by the Registrar.

Statement of Intellectual Honesty, see Calendar K.3

<https://www.ucalgary.ca/pubs/calendar/current/k-3.html>

Plagiarism and Other Academic Misconduct

<https://ucalgary.ca/student-services/student-success/learning/academic-integrity>

Academic Accommodations:

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. 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 <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation-for-Students-with-Disabilities-Procedure.pdf> and <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Accommodation-Policy.pdf>.

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

Personal information is collected in accordance with FOIP. Assignments can only be returned to the student and will be accessible only to authorized faculty and staff. For more information, see <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/faq-privacy-faculty-members.pdf> and <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/faq-privacy-students.pdf>

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 unless otherwise authorized by the instructor.

Copyright Legislation:

See the University of Calgary policy on Acceptable Use of Material Protected by Copyright at <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Acceptable-Use-of-Material-Protected-by-Copyright-Policy.pdf>. Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy.

Recording of Lectures:

Recording of lectures is prohibited, except for audio recordings authorized as an accommodation by SAS or an audio recording for individual private study and only with the written permission of the instructor. Any unauthorized electronic or mechanical recording of lectures, their transcription, copying, or distribution, constitutes academic misconduct. See <https://www.ucalgary.ca/pubs/calendar/current/e-6.html>.

Instructor Intellectual Property:

Course materials created by instructors (including presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the instructor. These materials may NOT be reproduced, redistributed or copied without the explicit consent of the instructor. The posting of course materials to third party websites such as note-sharing sites without permission is prohibited. Sharing of

extracts of these course materials with other students enrolled in the course at the same time may be allowed under fair dealing.

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 sue@ucalgarysue.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 Tower.

Student Support and Resources:

- See <https://www.ucalgary.ca/registrar/registration/course-outlines> for information on campus mental health resources, the Student Ombuds Office, Student Success Centre, Safewalk, and Emergency Evacuation and Assembly.
- Online writing resources are available at <https://ucalgary.ca/student-services/student-success/writing-support>.

Notes:

- You are responsible for all assigned material (eg, supplementary material posted on D2L), regardless of whether the material is covered in class.
- Please note that the following types of emails will receive no response: emails not addressed to anyone in particular; emails where the recipient's name is not spelled correctly; anonymous emails; emails in which the sender has not identified which course and section he/she is taking; and, emails involving questions that are specifically addressed on this course outline.
- I have been told that my lecture style is fast-paced and intense but engaging and humorous. Although students often find that this style makes the concepts easier to understand, they are often disappointed when they fail to perform to the level to which they are accustomed on my exams. My exams tend to reward those that are sufficiently knowledgeable of the underlying concepts and have developed an intuitive approach to the material. **Memorisation is almost never rewarded.**
- To give you the best chance for success in my course, I strongly encourage you to come prepared and on time, avoid absences, participate regularly with a positive attitude, read and review the relevant chapters in

detail before (and after) after class, do the exercises I recommend before the subsequent class, dress appropriately and identify problems and seek help as soon as they occur.

ML

2023-11-08