Department of Economics
Faculty of Arts

Economics395 (L01) (Use Of Statistics In Economics)

Instructor: Daniel V. Gordon
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Lecture Location: ZOOM Delivery
Lecture Days/Time: MWF 1:00-1:50

Office: ZOOM Delivery
Office Hours: MW 2:00-2:50
https://ucalgary.zoom.us/my/**daniel.v.gordon**

Fall 2020

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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 a 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 (e.g., excel, gretl, Stata) in generating empirical estimates (http://gretl.sourceforge.net/)

Course Outline:

Week	Topic	Readings	Notes
1	Introduction: Why study econometrics? Why it is useful for understanding economic problems and issues of measurement.	Wooldridge Ch. 1	Class starts September 9
1, 2	Review of basic probability and statistics: Opportunity to review important elements in Statistics.	Wooldridge Appendices A, B, C; Review Stats 213	
3, 4	Simple Regression model: Fundamental characteristics and mechanics of regression analysis, the importance of the residual error term.	Wooldridge Ch. 2	
4, 5	Multi-regression Model: A detailed understanding of why and what restrictions are required for a regression equation to generate empirically accurate information on the relationships among economic variables.	Wooldridge Ch. 3	
6	Multi-regression inference: Testing the statistical accuracy of the model and parameter estimates.	Wooldridge Ch. 4	
7, 8	Multi-regression further issues: Issues of functional form for specifying the regression model, selection of regressors, and using the estimated regression model for prediction.	Wooldridge Ch. 6	
9, 10	Qualitative information: The importance and use of binary (dummy) variables as regressors and choice variables. The linear probability model in economics is introduced.	Wooldridge Ch. 7	

Economics 395(01) Course Outline

| 11 | Heteroskedasticity: The variance of the regression equation and the importance of constant variance (homoscedasticity) in economic inference and model valuation, tests and corrections. | Wooldridge Ch. 8 | |
| 12, 13 | Model Specification: Issues arising in empirical application of regression models, testing functional specification, proxy variables and measurement error. | Wooldridge Ch. 9 | Class ends Dec 9 |

Prerequisites/corequisites:
Economics 201 and 203, Statistics 213 and 217.

Required Textbook(s):
Jeffrey M. Wooldridge Introductory Econometrics, A modern approach. 7th Edition, South-Western

Online Delivery:
This course will be delivered online. Students are expected to be able to participate online in accordance with this Course Outline. Lectures, assignments, office hours, exams, readings and other course material, etc. all require online access and this access is the responsibility of the student.

In order to remotely participate in online courses, students will need to have: computer with a current and updated operating system (macOS or Windows will work with all university-supported online learning technologies), a current and updated web browser installed – the latest versions of Firefox, Safari, Chrome or Edge will help to avoid compatibility issues, secure and reliable internet, microphone / headphones, webcam (optional), scanner (or camera to scan your work). Students will be introduced to a number of econometric software packages; excel, gretl, Stata.

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.

Lectures:
Lectures will be delivered online at the Registrar scheduled times and delivered using ZOOM. The lectures will be recorded and posted to D2L.

Labs:
Students are expected to attend virtually the lab presentation. Labs will be offered online, using ZOOM, but can involve moderated discussion boards and curated delivery of alternative online resources. During the labs, the TA will discuss pre-assigned questions and additional material relevant to the course that is not covered in lectures.

Grade Determination and Final Examination Details:

Best 4/5 Quizzes @ 5%	20%
4 Lab Exercises @ 10%	40%
Final Examination	40%
	100%

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

Quizzes may be a combination of multiple-choice, fill-in-blank and short-answer questions completed online. Quizzes are designed to be completed in 20 minutes, but students will have 30 minutes to complete each quiz, at a time of their choosing, within a 24-hour period determined by the instructor.

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

If a student's letter grade on the final exam exceeds their aggregate quiz letter grade, the weight of the aggregate quiz grade may be transferred to the final exam at the discretion of the instructor. The student must have written 4/5 quizzes or provided supporting documentation for the absence(s) such as a medical note or statutory declaration.

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.

The final examination will be comprehensive and scheduled by the Registrar. Students will download the exam from D2L, complete the exam, scan it, and submit using Dropbox in D2L. Student will have 50% more time to complete the exam, at a time of their choosing, within the 24-hour period that begins 24 hours before the end date of the Registrar's scheduled final exam for this course. The exam is designed to be completed in two hours.

All other course components will also be accessed, submitted, and returned through D2L.

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-6.html. Under no circumstance will this be accommodated by the Department.

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

ACADEMIC MISCONDUCT
Academic Misconduct refers to student behaviour 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.

Student committing academic misconduct during the final exam will not receive a passing grade on the course.

For information on the Student Academic Misconduct Policy and Procedure please visit:
https://ucalgary.ca/policies/files/policies/student-academic-misconduct-policy.pdf
https://ucalgary.ca/policies/files/policies/student-academic-misconduct-procedure.pdf
Additional information is available on the Academic Integrity Website at https://ucalgary.ca/student-services/student-success/learning/academic-integrity.

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 isconduct. See https://www.ucalgary.ca/pubs/calendar/current/e-6.html.

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 http://www.ucalgary.ca/policies/files/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 http://www.ucalgary.ca/legalservices/files/legalservices/faq-students.pdf   and http://www.ucalgary.ca/legalservices/files/legalservices/faq-faculty_0.pdf.

Copyright Legislation:
See the University of Calgary policy on Acceptable Use of Material Protected by Copyright at
www.ucalgary.ca/policies/files/policies/acceptable-use-of-material-protected-by-copyright.pdf.
Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy.

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
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! 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].

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:
1. Students are responsible for all assigned material, e.g., supplementary material posted on D2L, regardless of whether or not the material was covered in class.

DVG
2020-08-06