

Economics 395 (L01) (Use of Statistics in Economics)

Instructor: Atsuko Tanaka
Email: atanaka@ucalgary.ca

Lecture Location: ZOOM Delivery
Lecture Days/Time: TR 11:00-12:15

Office: ZOOM Delivery
Office Hours: Thursday 12:15-13:00

(Winter 2021)

Course Description:

Introduction to the use of statistical principles in economics. Topics include gathering economic data, basic data manipulation, hypothesis testing, and statistical estimation of economic relationships. 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.

Course Learning Outcomes:

Building on the fundamental mechanics of statistics and probability as presented in Stats 213 and 217, Econ 395 students will become familiar with the empirical application of statistical principles to problems of measurement in economics. The course focuses on the intuition and application of statistical reasoning, the gathering and manipulation of economic data, and the use of standard econometric software. Students completing this course successfully will have a fundamental working knowledge of statistics and econometrics as applied to solving current economic problems and measurement.

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	
2, 3	Review of basic probability and statistics: Opportunity to review important elements in Statistics useful for econometrics.	Wooldridge Appendices A, B, C; Review Stats 213	
4	Simple Regression model: Fundamental characteristics and mechanics of regression analysis, the importance of the residual error term.	Wooldridge Ch. 2	

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	
<u>6</u>	Mid-term Break		<u>Feb 14-20</u>
7	Multi-regression inference: Testing the statistical accuracy of the model and parameter estimates.	Wooldridge Ch. 4	
<u>**8</u>	<u>MIDTERM</u>	<u>Wooldridge Chapters 1 - 4</u>	<u>Thu, Mar. 4</u>
<u>** 9</u>	<u>Assignment #1 due</u>		<u>Mar. 11</u>
9	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	
10,11	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	
12,13	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	
13,14	Model Specification: Issues arising in empirical application of regression models, testing functional specification, proxy variables and measurement error.	Wooldridge Ch. 9	
14	Course Review and Final Examination Preparation		
<u>** 14</u>	<u>Assignment #2 due</u>		<u>Apr. 15</u>
	A cumulative final examination scheduled by the Registrar's Office	<u>Wooldridge Chapters 1 – 4, 6– 9, Appendix A, B, C</u>	

Prerequisites/corequisites:

Economics 201, Economics 203, Statistics 213 and Statistics 217

Required Textbook(s):

Jeffrey M. Wooldridge *Introductory Econometrics, A modern approach*. 7th Edition, South-Western

Recommended Textbook(s):

Keller. *Statistics for Management and Economics*, 8th Edition.

Stock and Watson. *Introduction to Econometrics*, 4th Edition.

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). The assignments ask you to use Excel (or another programming language such as Stata, Python, and R). No EXCEL/STATA/Python/R questions will be asked in the exam.

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 subsequently posted to D2L.

Tutorials/Laboratory:

Students are expected to attend “virtually” the tutorial sections to which they have been assigned. Tutorials will be offered online, typically using ZOOM, but can involve moderated discussion boards and curated delivery of alternative online resources. During the tutorials, the TA will discuss quantitative analysis using Excel (or standard statistical software such as Stata, Python, and R).

Grade Determination and Final Examination Details:

MIDTERM EXAM	20%
FINAL EXAMINATION	35%
10 WEEKLY QUIZZES (Highest 8 count)	20%
2 written ASSIGNMENTS	25%
	<hr/>
	100%

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

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 midterm(s) letter grade, the weight of the midterm(s) may be transferred to the final exam at the discretion of the instructor. The student must have written the midterm(s) 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>.

Course material dealing with a particular assignment will typically be covered in class at least 7 days before the assignment is due; thus, assignments can be completed at any time up to and including the due date. Given these factors, only situations where someone can document illness or domestic affliction for an extended period (i.e., the entire 7 days prior to the due date) would possibly warrant shifting the assignment weight to the final exam. Furthermore, technical problems can be expected to occur with computer systems (and internet availability) so it may be a good idea to not wait until the last minute to submit your assignment.

The midterm exam(s) is take-home exam(s) designed and intended to be completed in 75 minutes. The exam(s) will be OPEN book. The exam(s) will be available on D2L. Student will download the exam from D2L, complete the exam, scan it, and submit using Dropbox in D2L. Student will have 50% time extension to complete the exam, at a time of your choosing, within a 24-hour period determined by the instructor.

The final examination will be take-home, 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 and intended to be completed in two hours. The exam will be OPEN book.

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.

Tests and exams WILL NOT involve multiple choice questions or fill-in-blank questions.

The pop-up quizzes will be a multiple-choice or fill-in-blank short quizzes completed online in D2L. Student will have 20 minutes to complete the quiz, at a time of their choosing, within a 96-hour period determined by the instructor.

The Midterm Exam is held on March 4 (become available online at 12:15 p.m. on March 3)

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 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.

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>.

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 <https://www.ucalgary.ca/policies/files/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.

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.

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>.

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>.
-

Classes

- **All the class material will be posted to the Desire2Learn (D2L) platform** so that students who are not able to attend the lecture still have access to the material.
- The material covered in each lecture will be all found in one D2L file named "Date" (e.g. Folder "February 12" will contain all the materials covered on February 12).
- Before each lecture, I post reading material/slides. During/After the class time, the students are asked to post their questions on D2L discussion forum to receive immediate response from the instructor and/or the TA.

Communication

- **Email your TA and cc the instructor.** The TAs will help us communicate efficiently.
- We will get back to you within 2 business days.
- If you have urgent questions or concerns, use the word "[Urgent]" in your email title if you need to get a reply within one business day. Email your TA(s) and the instructor.
- I will post announcements on D2L Newsfeed. If announcements are important/urgent, I will also email you using the class mail-list.
- The office hours take place using Zoom. I will use the "waiting room" feature when possible or you can send an email in advance to choose an appointment time.

Assignments

- Submit your assignments to the D2L Dropbox before the due. Late assignments, assignments sent by e-mail will not be accepted.
- You are encouraged to work with your classmates. However, you need to write in your own words.
- Assignments Formatting Requirements:
 - Submit your assignments as ONE file unless specified otherwise. **Compressed folders (e.g. .zip or .pages) do not count as single files.** If you are uploading photos of your work, please transform them into a format recognized by Windows (e.g. JPEG, PNG or PDF format). *Please do not submit files with .heic extension.*

- Include your family name and the assignment number in the name of the file you upload to Dropbox in the following form: LASTNAME_hw# where you will substitute the assignment number for the # in the filename.
- You can scan your written homework with a scanner or your device's camera to create scanned pdf files. Before you submit your scanned homework be sure to verify that the scan is easily readable.
- Make sure that the pages are in the correct order; that is, the first page of the document should be the first page of your work and so on. Make sure that the pages are aligned properly; that is, pages are not in a landscape position.
- I recommend that you submit a draft at least one day before the due. If you want to make a change, you can upload the whole file as a new submission in the same folder---**your grade will be based on the most recent submission.**

Weekly Quizzes

- Weekly quizzes become available at D2L Quiz Section at least 96 hours prior to the due.
- Student will have 20 minutes to complete the quiz, at a time of their choosing.

Exams

- The exam will be uploaded in "midterm/final exam" folder 24 hours before the end time)
 1. **hand-write** your answers on a piece of paper (iPad/tablet is OK).
 2. Scan your answers (you can take a photo) and upload them into the D2L Dropbox folder ("Exam submission") **before the D2L Dropbox folder closes**. Make sure all the files are legible. The folder will close at the end time of the exam. The most recent submission will be graded (i.e. you can submit multiple times).
- **No late submission will be accepted.** If I do not **receive** your submission in time, you will receive no credit for the exam.
- **Warning:** This is a take-home exam. Please solve the questions by yourself. **No** discussion will be allowed. If we find the same answers and the same mistakes, the students are suspected to have cheated. Both students will receive 0, regardless of who helped who.

Other Notes

- The final exam is harder than the midterm exams. Try not to miss the midterm exam.
- 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.