

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

Instructor: Atsuko Tanaka  
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Lecture Location: SS 541  
Lecture Days/Time: MWF 11:00-11:50

Office: SS 423  
Office Hours: F 11:50 – 12:50

Fall 2019

### 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 Outcomes:

Building on the fundamental mechanics of statistics and probability as presented in Stats 205, 211 or 213, 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	Classes begin Sept. 5
2, 3	Review of basic probability and statistics: Opportunity to review important elements in Statistics useful	Wooldridge Appendices A, B, C; Review Stats 213	
<u>** 3</u>	<u>Assignment #1 due</u>		<b>Sept. 20</b>
4	Simple Regression model: Fundamental characteristics and mechanics of regression analysis, the importance of the residual error term.	Wooldridge Ch. 2	

5, 6	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	
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<u>** 5</u>	<u>Assignment #2 due</u>		<u>Oct. 4</u>
6, 7	Multi-regression inference: Testing the statistical accuracy of the model and parameter estimates.	Wooldridge Ch. 4	
<u>** 7</u>	<u>MIDTERM 1</u>	<u>Wooldridge Chapters 1 – 3, Appendix A, B, C</u>	<u>Oct. 23</u>
<u>** 8</u>	<u>Assignment #3 due</u>		<u>Oct. 25</u>
8,9	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	
<u>**</u>	<u>MIDTERM 2</u>	<u>Wooldridge Chapters 4 - 6</u>	<u>Nov 27</u>
<u>11</u>	Mid-term Break		<u>Nov 10-16</u>
12,13	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	
<u>** 12</u>	<u>Assignment #4 due</u>		<u>Nov. 22</u>
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	
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 #5 due</u>		<u>Dec. 6</u>
	A <b>cumulative</b> 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 205, 211 or 213

**Required Textbook(s):**

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

**Recommended Textbook(s):**

Keller. *Statistics for Management and Economics*, 8<sup>th</sup> Edition.

Stock and Watson. *Introduction to Econometrics*, 4<sup>th</sup> Edition.

**Books on Reserve:**

Adkins and Hill. *Using Stata for Principles of Econometrics*, 3rd Edition.

A. Colin Cameron & Pravin K. Trivedi, *Microeconometrics using Stata*, Revised Edition, Stata Press

Angrist, Joshua D. and Jörn-Steffen Pischke. *Mostly Harmless Econometrics: An Empiricist's Companion*

Hill, Griffith, and Lim. *Principles of Econometrics*, 3rd Edition.

**Assignments Formatting Requirements:**

- 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.
- Submit your assignments to the D2L Dropbox as ONE file before the folder becomes unavailable (the due is the midnight) 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. **Compressed folders (e.g. .zip or .pages) do not count as single files.**
- 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.
- 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.*
- 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.

**Desire2Learn (D2L):**

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.

**Laboratory:**

Quantitative analysis using standard statistical software; Stata and Excel.

**Grade Determination and Final Examination Details:**

5 Assignments (see dates above)	25% (5@5%)
Two Midterm Exams (see dates above)	40% (2@20%)
Final Exam	35%

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) is (are) transferred to the final exam. 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>.

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](http://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.

Programmable calculators, cellphones, textbooks, course notes, and other electronic devices will not be allowed during the writing of tests or final examinations. Students are reminded that simply being able to access their cellphone during an exam is academic misconduct.

THERE WILL BE NO MAKEUP OR DEFERRED EXAMS under any circumstances, nor may the quizzes/tests/exams be written early. Students unable to write the 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:**

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](http://www.ucalgary.ca/legalservices/files/legalservices/faq-faculty_0.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 [www.ucalgary.ca/policies/files/policies/acceptable-use-of-material-protected-by-copyright.pdf](http://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.

**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](mailto:econrep@fasaucalgary.ca) and Web: [www.fasaucalgary.ca](http://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](mailto: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](mailto: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.

**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.
2. The use of cell phones for any purpose in class is prohibited. The classroom is a no cell phone zone. Laptops and tablets may only be used for note-taking purposes.
3. Late essays, essays sent by e-mail, placed in my mailbox or placed under my office door **will not be accepted.**
4. The weight of missed assignments/midterm exam will be shifted to the final exam. The final exam is harder than the midterm exam. Try not to miss the midterm or assignments.
5. Consult when needed. Student support advisors at the SU Wellness Centre (403-210-9355 [ucalgary.ca/wellnesscentre](http://ucalgary.ca/wellnesscentre)) can help you.

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2019-07-24