

## Economics 395(L02) Use of Statistics in Economics

Instructor: Arvind Magesan  
Phone: 220-5276  
Email: anmagesa@ucalgary.ca

Lecture Location: SA 119  
Lecture Days/Time: TR 14:00-15:15

Office: SS430  
Office Hours: TR 15:15-16:15

Fall 2018

**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.

**Laboratory:** Quantitative analysis using standard statistical software; Stata and Excel.

**Course Objectives/Learning 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 current economic problems.

### Course Outline:

#### Introduction to Econometrics (Chapter 1)

Why study econometrics and why it is useful for understanding economic problems and issues of measurement.

(1 hr)

#### Review of basic probability and statistics (Appendices A, B, C)

Opportunity to review important elements in Statistics useful for econometrics.

(4hrs)

#### Simple Regression model (Chapter 2)

Fundamental characteristics and mechanics of regression analysis, the importance of the residual error term.

(4 hrs)

#### Multi-regression models (Chapter 3)

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.

(6 hrs)

#### Multi-regression inference (Chapter 4)

Testing the statistical accuracy of the model and parameter estimates.

(5 hrs)

**Multi-regression further issues (Chapter 6)**

Issues of functional form for specifying the regression model, selection of regressors, and using the estimated regression model for prediction.

(3hrs)

**Qualitative information (Chapter 7)**

The importance and use of binary (dummy) variables as regressors and choice variables. The linear probability model in economics is introduced.

(4 hrs)

**Heteroskedasticity (Chapter 8)**

The variance of the regression equation and the importance of constant variance (homoscedasticity) in economic inference and model valuation, tests and corrections.

(3 hrs)

**Model Specification (Chapter 9)**

Issues arising in empirical application of regression models, testing functional specification, proxy variables and measurement error.

(3 hrs)

Course Review and final examination preparation.

(2 hrs)

**Prerequisites/corequisites:**

Economics 201, Economics 203, Statistics 205, 211 or 213.

**Required Textbook(s):**

Jeffrey M. Wooldridge Introductory Econometrics, A modern approach. 5<sup>th</sup> Edition South-Western 2013  
ISBN-13:978-1-111-53104-1

**Recommended Textbook(s):****Books on Reserve:**

Jeffrey M. Wooldridge Introductory Econometrics, A modern approach. 5<sup>th</sup> Edition South-Western 2013  
ISBN-13:978-1-111-53104-1

Joshua Angrist and Jorn Steffen Pischke. Mastering Metrics: The Path from Cause to Effect.

James Stock and Mark Watson. Introduction to Econometrics.

**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:**

Problem Sets (5) - 25%

Midterm 1 (Week of Oct 8) – 20%

Midterm 2 (Week of Nov 5) – 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.

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 his 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. Non-programmable calculators WILL NOT 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 Accommodation:**

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. For additional information on support services and accommodations for students with disabilities Visit [www.ucalgary.ca/access/](http://www.ucalgary.ca/access/).

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>

**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 partnerships with the Career Centre through hosting industry nights and information sessions, recognizing achievements in teaching, and organizing 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.
- 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 Social Science – Food Court.

**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.