ECON 031
Introduction to Econometrics
Swarthmore College, Spring 2016

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Description: This course offers an introduction to the field of econometrics, with a focus on the fundamental principles and techniques of descriptive and inferential statistics. The course emphasizes economic applications of statistical methods, particularly simple and multiple regression models. The course recognizes the importance of the underlying modeling assumptions, and the challenges of empirically distinguishing correlation from causality.

Goals: Upon successful completion of the course, students are expected to be able to
  a. Understand basic statistical concepts and methods;
  b. Apply basic statistical methods to simple economic applications;
  c. Obtain data and conduct basic statistical analysis, using statistical software;
  d. Present and interpret data and statistical analysis;
  e. Critique simple statistical applications in economics.

Textbook: Paul Newbold, William Carlson, & Betty Thorne, *Statistics for Business and Economics,* 8th ed., Pearson, 2013. (NCT)
Students are expected to have read the assigned chapters of the text book before the topics are discussed in class. Supplementary readings will be provided.

Software: *Stata* is the preferred statistical software package to use for the course, available from the College's software server.
    Some useful online resources for learning Stata:
  • Video tutorials on using Stata, StataCorp LP, USA
  • Stata Tutorial, Germán Rodríguez, Princeton University, USA
  • Resources to help you learn and use Stata, UCLA Academic Technology Services, USA
    All written assignments are expected to be typed. You may use any word processing software of your choice, such as Microsoft Word or LaTeX.

Keys to Success: Listed here are a few tips for having an enjoyable and fruitful semester with this course:
  • Do the readings! Complete the assigned readings before classes.
  • Work out the examples in the textbook by hand or using Stata.
  • Speak out. Ask questions, lots of them, in class as well as outside.
  • Use the resources available to you, office hours, clinic hours and your peers.
  • Work in groups, but do your own work, or at least try to.
  • Start working on the problem sets early.
  • Ask for a tutor if you feel that you are falling behind.
  • Do not get discouraged by the first midterm exam.

Grading: Participation 15%   Presentations 15%
                  Quizzes 5%   Midterm Exams 30%
                  Problem Sets 15%   Final Exam 20%

Participation. Students are expected to contribute positively to the course in a variety of ways, including but not limited to:
- regularly attending classes;
- asking and answering questions in class;
- engaging in discussion, problem solving and other classroom activities;
- offering comments and suggestions to improve the course.

Quizzes. Short quizzes, focusing on concepts, will be posted on Moodle. Students are expected to read the assigned chapters of the text book and complete the quizzes BEFORE each week's classes. Full credit is awarded for a quiz if 60% of the questions are answered correctly. Up to two quizzes may be skipped without penalty.

Problem sets. Seven problem sets will be assigned during the semester. The highest six grades will count. Since most problems involve computer work using *Stata*, students are expected to complete all work in electronic form and submit on Moodle. Late submissions will be accepted with penalty provided solutions have not been posted. Students are encouraged to collaborate on the assignments; however, each must submit her/his own completed work reflecting their own intellectual effort. Solutions will be posted on Moodle. Problem sets will be graded in a number of ways, including self and peer assessment. Such assessment activities factor into the overall problem sets grade.

Presentations. There will be two presentations for each student. The first, worth 5%, will be an individual presentation on current statistical data or analysis to aid classroom discussion. It could be a chart on a newspaper or report on an interesting econometric study. Some good sources include The Upshot at The New York Times, Graphic detail at The Economist, FT Data at Financial Times. A good presentation will make connections to the concepts and methods being covered in the course.
The second presentation will be on a published empirical paper. It should help the class see how a typical econometric study is conducted and how statistical methods are applied to economic problems. Students will work in pairs or groups of three for this presentation. Groupings will be announced in the third week based on your expressed interests on a list of papers.

Midterm Exams. There are two in-class closed-book midterm exams for the course, each worth 15%. The second one is cumulative. Midterms will be scheduled

Final Exam. The final exam will take place during the finals period. Exam schedule will be posted by the Registrar once it is determined. The final is cumulative.

A passing grade for the course cannot be achieved without satisfactory and timely completion of all course requirements.

Grading complaints: If you find any mistake in grading of your problem sets or exams, please submit a written request to the professor within one week of grades posted.

Catching mistakes: Students can earn extra credit by catching mistakes or typos in the lectures, the text book and other course materials. The first to notify the instructor of a mistake will get two tenth of a percentage point toward the final grade, up to a max of two percentage points.

Academic Integrity: As a faculty member, I am strongly committed to upholding the college's academic policies, including those on academic misconduct.

Accommodation: If you believe that you need accommodations for a disability, please contact Leslie Hempling in the Office of Student Disability Services (Parrish 113) or email lhempli1@swarthmore.edu to arrange an appointment to discuss your needs.

Tentative Schedule

Week	Topics	NCT Chapters	P. Sets and Exams
1, 2	Introduction; Graphical and Numerical Representation of Data	1, 2	
2	Introduction to Stata		
3	Basic Probability and Set Theory	3	PS 1 due
4	Random Variables, Discrete and Continuous Probability Distributions	4, 5	
5	Sampling and Sampling Distributions	6	PS 2 due
6	Catch-up		PS 3 due, *Midterm I*
7	Estimation	7, 8	
	Spring Break		
8	Hypothesis Testing	9, 10	PS 4 due
9	Simple Regression	11	
10	Simple Regression	11	PS 5 due
11	Multiple Regression	12	
12	Multiple Regression	12, 13	PS 6 due, *Midterm II*
13	Multiple Regression Diagnostics Paper presentations	13	
14	Catch-up, review Paper presentations		PS 7 due

This syllabus is subject to changes. For the latest version, please visit the course's Moodle page.

Dougherty: Introduction to Econometrics 5e. Select resources by chapter. Please select a chapter Introduction Part: Review chapter Chapter 1: Simple RegressionÂ Binary Choice and Limited Dependent Variable Models, and Maximum Likelihood Estimation Chapter 11: Models Using Time Series Data Chapter 12: Autocorrelation Chapter 13: Introduction to Nonstationary Time Series Chapter 14: Introduction to Panel Data Models. Student resources. Data sets. Access all the data sets referred to in the text. Gretl. Introduction to Econometrics FOURTH EDITION Christopher Dougherty London School ofEconomics OXPORD U N I V E R S I T Y PRESS OXFORD UNIVERSITY PRESS Great Clarendon Street, Oxford OX2 6DP Oxford University Press is a department of the University of Oxford. It furthers the University's objective of excellence in research, scholarship, and education by publishing worldwide in Oxford NewYork Auckland Cape Town Dar es Salaam Hong Â· Learn to evaluate the regression analysis of others â€" this means you will be able to read/understand empirical economics papers in other econ courses; Â· Get some hands-on experience with regression analysis in your problem sets. 1/2/3-5.