

**ECON 107 - Applied Regression Analysis**  
**Department of Economics**  
**Pomona College**

**Spring 2006**

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Office Hours: Weds, 4-5:30 pm in Smith Campus Center A8  
or By Appointment in Alexander Hall

**COURSE DESCRIPTION.**

This course has three objectives: (1) to solidify your understanding of what constitutes an economic model; (2) to expand and refine your ability to use regression analysis as a tool in economic research; (3) to give you hands on experience with real world, economic data and with the computer software packages available to manipulate it. At the end of the semester, you should be able to (1) use deductive reasoning to identify testable hypotheses; (2) use regression analysis to test these hypotheses; (3) use regression analysis to describe economic relationships and to make simple forecasts of future activity; and (4) read, with confidence, papers in academic journals that report the results of regression analyses.

**COURSE WEB PAGE.**

Updates on reading assignments, PowerPoint lecture slides, homework answers, and links to statistical sources are available on our web page: <http://www.economics.pomona.edu/cconrad/regressf00.html>.

**TEXTBOOK.**

A. H. Studenmund. *Using Econometrics: A Practical Guide*. Fifth Edition. Pearson Addison Wesley Longman.

**OTHER READINGS**

The articles listed on the syllabus are available electronically through Honnold Library.

**SOFTWARE**

For this course, you will need to use a statistical software package. We will introduce two: E-Views and STATA. E-Views is widely used in business. STATA is widely used in academia. STATA and E-Views are both accessible on the Pomona network. Student versions of E-Views are bundled with some versions of your textbook or may be purchased at low cost from [www.eviews.com](http://www.eviews.com).

## COURSE REQUIREMENTS.

Homework Assignments 10%; Quizzes 20% (Quiz One, 10% and Quiz Two, 10%) Final Exam, 30%; Term Project 40%;

## HOMEWORKS.

Homework due dates are listed on the syllabus. NO LATE HOMEWORK WILL BE ACCEPTED.

## TERM PROJECT

Student can either work independently on the term project or as a member of a two-person team. The team members will collaborate on data collection and the empirical analysis; however, each team member must write and submit independently paper two.

Paper One (1-2 pages). Paper poses a research question from any field in economics, discusses relevant economic theory and develops a strategy for answering that question using regression analysis. Strategy will define a dependent variable, a set of explanatory variables, and type of data required. Student will distribute proposal to classmates and to professor for feedback. Following class discussion, student may revise and resubmit the paper. This paper will serve as the student's proposal for the semester project. Paper due February 8, 2006. (3%)

Preliminary Bibliography. A bibliography of papers published in academic journals or as part of working paper series that use regression analysis to address student's topic or related topics. Due March 1, 2006 (2%)

Paper Two (5-10 pages). Literature review. Paper will review and critique published empirical research on topic. In particular, paper will identify theoretical propositions tested in the papers, identify dependent variables and independent variables, discuss any econometric problems and possible solutions. Students will receive written comments from the faculty member on both content and style of paper and will have opportunity for revision. Paper due March 10, 2006. (10%)

Paper Three (2-3 pages) Submit summary tables describing the data to be used in the project. Due March 31, 2006 (2%)

Paper Four (3-5 pages). This paper will report the results of the student's regression analysis. The paper should identify a specific research question, describe the data used to answer that question, present results, describe empirical problems and methods used to correct those problems. Paper due April 10, 2006. (3%)

NBER Style Research Conference. Each student will be assigned the job of discussant for the paper of another student. The discussant will present the assigned paper and

provide a brief critique. The discussant will have 15 minutes: 10 minutes to explain the assigned paper with at least 5 minutes devoted to the regression analysis and 5 minutes to provide a critique. The author then has 5 minutes to either respond, provide new or supplemental information, or to discuss what he/she would do differently in the future. April 17-28<sup>th</sup> 2006(5%)

Final Paper (10-12 pages). This paper will have five components: (1) an introduction that clearly states the student's research question; (2) a review of other studies that have addressed the same question or related questions; (3) a description of the student's research methodology (including a description of the data used); (4) the results of the student's regression analysis; and (5) a conclusion. Ideally, this paper will incorporate edited material from the earlier papers. Paper due May 3, 2006 (Senior Due Date – April 28<sup>th</sup>). (25%)

## ELECTRONIC SUBMISSION OF ASSIGNMENTS.

We encourage submission of paper assignments as e-mail attachments. Use your name and the number of assignment to name the file. For example, if Professor Conrad were to submit the first paper electronically, the name of the document would be: conradpap1.doc.

## LECTURE OUTLINE

### I. Research Methods in Economics

January 18, 2006- January 30, 2006

#### A. The Economist's Tool Box – January 20th

Studenmund, Chap. 1

Burtless, Gary, "The Case for Randomized Field Trials in Economic and Policy Research," *Journal of Economic Perspectives*, v9, #2 (Spring 1995): 63-84.

#### B. Learning to Use Regression Analysis – January 23<sup>rd</sup>

Studenmund, Chap. 2 &3

Romer, David. "Do Students Go to Class? Should They?" *Journal of Economic Perspectives*, Vol. 7, #3, (Summer 1993), 167-174.

No Class on January 25<sup>th</sup> and 27<sup>th</sup>

Assignment One - Due January 30<sup>th</sup>.

#### C. Empirical Controversies – January 30<sup>th</sup>.

### II. The Classical Model

February 1-6, 2006

A. Assumptions of the Classical Model  
Studenmund, Chap. 4

B. Derivation of OLS Estimators and The Gauss-Markov Theorem  
Handout

ASSIGNMENT TWO – DUE FEBRUARY 6, 2006

PAPER TOPICS DUE FEBRUARY 8, 2006

III. Hypothesis Testing  
February 8-15, 2006

A. Tests Involving a Single Coefficient  
Studenmund, Chap. 5

B. Tests Involving Multiple Coefficients  
Studenmund, Appendix to Chap. 5

ASSIGNMENT THREE – DUE FEBRUARY 15, 2006

C. Regression Analysis in Action – Application of Hypothesis Testing  
Studenmund, Chapter 7, pp. 222-229  
Daniel S. Hamermesh and Jeff E. Biddle, "Beauty and the Labor  
Market," *The American Economic Review*, Vol. 84, December 1994,  
pp.1174-1194.

IV. Specification Issues  
February 17 - March 6, 2006

A. Specification - Choosing the Independent Variables  
Studenmund, Chap. 6

ASSIGNMENT FOUR – DUE FEBRUARY 20, 2006

QUIZ ONE – FEBRUARY 24, 2006

LIBRARY TALK – FEBRUARY 27, 2006

C. Specification - Choosing the Functional Form  
Studenmund, Chap. 7

PRELIMINARY BIBLIOGRAPHY – MARCH 1, 2006

- E. Multicollinearity  
Studenmund, Chap. 8

ASSIGNMENT FIVE – DUE MARCH 6, 2006

- E. Regression Analysis in Action: SAT Interactive Exercise  
Studenmund, Chap. 8 Appendix

APPOINTMENTS TO DISCUSS TERM PROJECTS – MARCH 2-8, 2006

- IV. More Violations of the Classical Model Assumptions  
March 8-24, 2006

- A. Autocorrelation  
Studenmund, Chap. 9

PAPER TWO – DUE MARCH 10, 2006

- B. HETEROSKEDASTICITY  
Studenmund, Chap. 10

ASSIGNMENT SIX – DUE MARCH 22, 2006

QUIZ TWO – MARCH 27, 2006

- VVI. More Applications of Regression Analysis and Other Topics  
March 29 – May 3, 2006

- A. Discrete Choice Models  
Studenmund, Chap. 13.

Horowitz, Joel L. and N.E. Savin, "Binary Response Models: Logits, Probits and Semiparametrics," *Journal of Economic Perspectives*, Vol. 15, No. 4 (Autumn, 2001), 43-56.

DATA TABLES – DUE MARCH 31, 2006

- B. Regression Analysis in Action: Discrete Choice Models  
Montalvo, Jose G and Marta Reynal-Querol, "Ethnic Polarization, Potential Conflict, and Civil Wars," *The American Economic Review*, vol. 93, No. 3 (June 2005), 796-816.

APPOINTMENTS TO DISCUSS PROJECTS – MARCH 29 – APRIL 5, 2006

ASSIGNMENT SEVEN – DUE APRIL 3, 2006

C. Simultaneous Equation Models

Studenmund, Chap. 14

Angrist, Joshua et al, "Instrumental Variables and the Search for Identification,"  
*Journal of Economic Perspectives*, Vol. 15, No. 4, (Autumn 2001),69-85.

PAPER FOUR – APRIL 10, 2006

ASSIGNMENT EIGHT – DUE APRIL 12, 2006

D. The Regression User's Guide

Studenmund, Chap 11

E. Regression Analysis in Action – Simultaneity

Cutler, David M. and Edward L. Glaeser, "Are Ghettos Good or Bad?"  
*The Quarterly Journal of Economics*, August 1997, pp. 827- 872.

RESEARCH CONFERENCE – APRIL 17, 21, 24, 28.

F. Special Topics