

Boston College  
EC 228: Econometrics  
Spring 2001

Class: Tues, Thurs, noon-1:15 pm.

Professor Serena Ng (Serena.Ng@bc.edu)

Office: Carney 238

Office Hours: Tuesday and Thursday 10:15-11:45am

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#### Course Description

This course is designed to introduce students to the theory and applications of econometric methods. Students will learn the basic tools of estimation and inference in single-equation linear regression models. The goal is to enable students to estimate and test economic relationships of interest.

The web page for the course is <http://www2.bc.edu/~ngse/ec228-01.htm>

Announcements and problem sets will be posted on the web page.

\*Students are expected to have completed courses in university level calculus and statistics, and should feel comfortable with Sections A1-A6

(Appendix) of Gujarati.\*\* .....

Required text:

Basic Econometrics, Third Edition, Damodar N. Gujarati, Mcgraw Hill.

Textbooks used in previous years that some students like:

Introductory Econometrics with Applications, Third Edition, Ramu Ramanathan, Dryden Press.

Econometric Models and Economic Forecasts, Third Edition, Robert Pindyck and Daniel Rubinfeld, Mcgraw Hill.

A very good and up-to-date but somewhat more advanced text is

Introductory Econometrics: A Modern Approach, Jeffrey Wooldridge, South-Western College Publishing ISBN 0-538-85013-2.

Software

The problem sets will often require students to perform various econometric exercises using some econometrics software package. The recommended package for the course is STATA, which is installed on most computers at BC. Other popular packages are RATS and SPSS. Please do not use spreadsheets. There will be a tutorial to STATA. For those curious and enthusiastic, you can get started by following the following beginners guides:

<http://www.ats.ucla.edu/stat/stata/>

<http://fmwww.bc.edu/ec-p/baum/tws/stata6.ppt.pdf>

Evaluation: \*\* 5 Problem Sets:..... 40%  
..... Mid-Term Exam (March 13): \*\*\*\* 30%  
..... Final Exam (May ??):..... 30%

\*Problem sets are due (in class) two weeks after they are assigned. A penalty of one point per day will be applied to missed deadlines. There will be no exceptions.

### Course Outline

Part A: The Simple Linear Regression Model (4 Weeks)

1. Introduction and Basic Concepts of Regression Analysis

\*\*\*\* Ref: Ch 1 p.1-27 and Ch 2, p.32-45.  
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2. Estimation

The Method of OLS: Ch 3.1, p. 52-59, Appendix to Ch. 3

Assumptions: \* Ch 3.2, p.59-69.....

Properties of the Least Squares Estimates: Ch. 3.3-3.10, p. 69-87

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The Assumption of Normality: Ch. 4.1-4.3, p. 101-110

### 3. Hypothesis Testing

Interval Estimation: Ch 5.1-5.9, p.115-136

..... Ch 5.11-5.13, p.140-145

Prediction: Ch 5.10, p.137-139

### 4. Functional Forms

Interpretation of the estimates and elasticities:

..... Ch. 6.2-6.7, p.161-178 ..... 1

### Part B: The Multiple Regression Model (4 Weeks)

Specification: Ch. 7.1-7.3, p.191-197

Functional Forms: Ch. 7.11, p.217-221

Estimation: Ch. 7.4, p. 197-201

Goodness of Fit: Ch. 7.8-8.10, p.207-217

Hypothesis Testing: Ch. 8.1-8.8, p.238-265

Mid Term (tentative date March 13, 2001)

Dummy Variables: Ch. 15.1-15.10, p.499-519

Part C: Relaxing the Assumptions of the Classical Model

Multicollinearity: Ch. 10, p.319-346

Heteroskedasticity: Ch. 11, p.355-390

Specification and Measurement Errors: Ch. 13.1-13.4, p.452-467

Serial Correlation: Ch. 12.1-12.2, p.400-409

\*\*\*\* The Durbin-Watson Statistic: Ch. 12.5, p. 420-426

\*\*\*\* Quasi-Differencing: Ch. 12.6, p.426-429

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Part D: Others

The Logit Model: Ch. 16.1-16.10, p.540-563

Simultaneous Equation Models: Ch. 18-19' ..... .

Review ···········

Final Exam