

**UNIVERSIDAD DE LOS ANDES  
FACULTY OF ECONOMICS**

**ECONOMETRICS I  
WORKSHOP  
SEMESTER 1, 2004**

**SYLLABUS**

**Professor:** Jorge Alexander Bonilla Londoño  
**Electronic mail:** [jbbonilla@dnpp.gov.co](mailto:jbbonilla@dnpp.gov.co)

**Objective**

To estimate most econometric models using the simple regression and multiple regression techniques, it is necessary to manage databases in statistical packages. This course looks to apply the basic theoretical concepts seen in the Econometrics I course. The students will participate in exercises in order to receive training in handling computer programs for econometric analysis and in the analysis of economic problems that require econometrics for their solution.

The course will use primarily Excel and Stata 8.0. Each computer program will have specific exercises. However, the versatility of the programs and their applicability to various types of econometrics problems will be emphasized.

**Evaluation**

The “taller” corresponds to 15% of the final Econometrics I course grade. This qualification will be based on four (4) homework assignments, where the solution of each will be given (8) days after having received the assignment, and an evaluation on the handling of the computer programs. The assignments may be completed in groups of THREE (3) students, while the evaluations will be individual.

**Bibliography**

**Theoretical concepts**

- Wooldridge, Jeffrey M. (2000), *Introductory Econometrics: a modern approach*, South-Western College Publishing. (W)
- Gujarati, Damodar N., (1995), *Basic Econometrics*, 3<sup>rd</sup> ed., McGraw Hill, New York (G)

- Novales, Alfonso (1997), *Econometría*, McGraw Hill, Bogotá
- Hill, R. Carter, William E. Griffiths, y George G. Judge (2001) *Undergraduate Econometrics*, 2<sup>nd</sup> ed., John Wiley & Sons, New York.
- William E. Griffiths, R. Carter Hill, George G. Judge (1993), *Learning and Practicing Econometrics*, John Wiley & Sons, New York.

### **The computer programs**

Students can consult the help menu of each statistical package. Nevertheless to obtain additional information the following electronic addresses may be useful:

- <http://www.eviews.com>
- <http://www.stata.com>

### **Course Topics**

#### **Chapter 1. Introduction to the Excel**

- 1.1. Generation of random numbers
- 1.2. The average and the variance
- 1.3. The dispersion diagram
- 1.4. The covariance between two variables
- 1.5. The coefficient of linear correlation
- 1.6. The variance-covariance matrix of the variables
- 1.7. The correlation matrix of the variables
- 1.8. Other descriptive statistics (median, kurtosis and skewness).
- 1.9. Hypothesis testing

#### **Chapter 2. Introduction to Stata 8.0**

- 2.1. Importing databases
- 2.2. Descriptive statistics for the variables
- 2.3. The dispersion diagram
- 2.4. Variance-covariance matrix of the variables
- 2.5. Correlation matrix of the variables

### **Chapter 3. Simple regression in Excel and Stata 8.0**

- 3.1. Estimate of model parameters
- 3.2. Variance and standard error of the parameters
- 3.3. Confidence Intervals
- 3.4. Hypothesis testing

### **Chapter 4. Multiple regression in Excel and Stata 8.0**

- 4.1 Estimate of model parameters
- 4.2 Variance and covariance matrix of the parameters
- 4.3 Hypothesis testing
- 4.4 Adjusted coefficient of determination ( $R^2$ )
- 4.5 Confidence Intervals

### **Chapter 5. Regression with dummy variable**

- 5.1. Dummy variable construction
- 5.2. Estimating models with dummy independent variables

### **Chapter 6. Violation of the assumptions of the basic model**

- 5.1 Multicollinearity
- 5.2 Heteroskedasticity
- 5.3 Autocorrelation

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