Econometric Analysis

Fall 2013
Jin-Lung Lin

Course: 1 semesters, 3 hours per lecture.
Hours: Wed. 6:10pm-9:00pm
Office Hours: Thu. 14:00-17:00, Room A311

Econometric Analysis is the first-year graduate course in econometrics. The course aims at equipping the students with the knowledge for advanced empirical analysis, especially in the fields of finance and economics. Thus, the focus is placed upon methodology rather than proving statistical theorems. I adopt the book written by William H. Greene for its broad coverage and clear exposition.

While students may have only limited exposure to econometrics, I shall allocate parts of the course on regression mode specification and testing as is covered in Stock and Watson (2007). They are extremely useful in real empirical analysis.

Textbook

William H. Greene, **Econometric Analysis**, 6th ed., 2008 New Jersey: Prentice Hall

Reference Books

- James H. Stock and Mark Watson, *Introduction to Econometrics*, Boston: Addison-Wesley, 2007

One can never really master econometrics without getting his/her hand dirty. Real data using some statistic or statistic package is considered as an essential part of this course. I shall give empirical data analysis during the lectures and assign computer-related home work. For this purpose, I shall teach and ask students to learn and use *R*, a powerful statistical and yet free package. It can be downloaded from

http://www.r-project.org.

Several good free books on R:

1. Grant V. Farnsworth (2008) Econometrics in R. PDF and a browsable HTML version files are available at *www.r-project.org Introduction to Econometrics*, Boston: Addison-Wesley, 2007

2. Christian Kleiber and Achim Zeileis, *Applied Econometrics with R*, Springer, 2008

3. Michael J. Crawley *The R Book*, John Wiley and Sons, 2007

Course evaluation: midterm (30%), term paper (40%), homework and class attendance (30%).

1 Topics

1. Using R
   one lecture

2. Review of matrix theory (Appendix A)
   one lecture

3. Review of probability and distribution theory (Appendix B)
   one lecture

4. Estimation and inference (Appendix C)
   one lecture

5. Large sample distribution theory (Appendix D)
   one lecture

6. Linear regression model and least squares (Chaps. 2,3)
   one lecture

7. Statistical properties of the least squares estimator (chap 4)
   one half lecture

8. Inference and prediction (chap 5)
   one half lecture

9. Functional form and structural change (chap 6)
   one lecture

10. Specification analysis and model selection (chap 7)
    two lectures

11. Generalized regression model (chap 8)
    one lecture

12. Instrumental variables estimation (chap 12)
    one lecture

13. Maximum likelihood estimation (chap. 16)
    one lecture

14. Series correlation; model with lagged variables (chaps 19,20)
    one lecture

Guidelines for writing a term paper.

1. Paper must have real economic or financial data of Taiwan, US or other countries.

2. Data must be up to the most recent period available.

3. Possible data sources available: CRSP, COMPUSTAT, Taiwan Economic Journal, Taiwan Corporate Credit Risk Index (TCRI), Directorate-General of Budget, Accounting and Statistics.

4. Free to use any statistical software. Prepare the source codes for possible check-up.

5. Graphs of data must be provided; estimation or testing results must be reported and well explained.