ECA 5103 Quantitative and Computing Methods

Instructor

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Required Textbooks

- Greene, W., Econometric Analysis, 7th ed., Prentice-Hall

References

- Hayashi, Econometrics, Princeton.

Course description

This is an applications-oriented introductory level module for students who do not have a sufficient training in econometrics. Students who have already completed modules at this level can opt for higher level econometric modules. Students will be provided with hands-on training in computer software such as SAS, EViews and Excel. The module covers probability distributions and statistical inference, matrix algebra, simple and multiple linear regression models, diagnostic testing, dummy variable regressions, and time series econometrics.

Course Outline (tentative)

1. Math and Statistics Review
   a. Appendix A : Matrix Algebra
   b. Review for Hypothesis testing

2. Classical multiple regression model
   a. Ch. 2. The Classical Multiple Linear Regression Model
   b. Ch. 3. Least Squares
   c. Ch. 4. Statistical Properties of the Least Squares Estimator
   d. Ch. 5. Inference and prediction
   e. Ch. 6. Functional Form and Structural Change
f. Ch. 7. Specification Analysis and Model Selection  
g. Ch. 8. The Generalized Regression Model  
h. Ch. 10. Systems of Regression Equations  
i. Ch. 12. Instrumental Variables Estimation  
j. Ch. 19. Serial Correlation

3. Time series regression model  
a. Ch. 21. Time Series Models

**Grading**

Grading will be based on problem sets (30%), class participation (10%), a midterm exam (30%), and a final exam (30%). Late assignments will be accepted with a 10% penalty for each day they are late.