

Agricultural and Applied Economics 6610

Quantitative Techniques in Agricultural Economics

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Office Hours: F 10 am – Noon

Fall 2004
T TH 3:30-4:45
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Course Description: This course is a Master's level course in applied econometrics. The course will use both scalar and linear algebra. It will cover basic topics in linear regression analysis and hypothesis testing. Problem sets will involve paper and pencil computation and the use of SAS IML computer program.

Textbooks: There is no official text for the course, but you may find the following are useful references. An * indicates they should be available in the University bookstore. An **(R)** indicates on reserve in the Science Library.

Chang, Alpha, Fundamental Methods of Mathematical Economics (McGraw Hill, 1984).

Goldberger, Arthur, A Course in Econometrics, (Harvard University Press, 1994). **(R)**

Johnston, J. and J. DiNardo, Econometric Methods (McGaraw-Hill, 1997).* **(R)**

Kennedy, P., A Guide to Econometrics, 2nd Edition, (Wiley, 1988).* **(R)**

Kmenta, J., Elements of Econometrics (Macmillan, 1997). **(R)**

Maddala, G. S., Limited Dependent and Qualitative Variables in Econometrics (Cambridge University Press, 1999).* **(R)**

Stock, James H. and Mark W. Watson, Introduction to Econometrics, (Pearson Education, Inc, 2003).

<u>Grading:</u>	Problem Sets	--	40%
	Midterm	--	30%
	Final	--	30%

Course Grade: 90 – 100 = A; 75 – 90 = B; 60 – 75 = C;
< 60 = Very Disappointing

Office Hours: Friday 10 am – noon. I will also be available outside of scheduled office hours by appointment. Email is another effective way of communicating concerns and posing questions about the course. I will NOT be available Tuesdays and Thursdays. Please do not disturb me during this time.

Please note that there are some lectures that will go a bit over time. You are encouraged to stay, but are welcome to leave at the appointed time. If you leave, however, I strongly suggest you read the suggested readings associated with the topic.

Course Outline and Suggested Readings:

1. Random Variables, Hypothesis Testing, and Confidence Intervals.

Basic Stats and Hypothesis Testing

Stock and Watson Chapter 2 and pp. 61-76.

Properties of Estimators

Kmenta pp. 155-172; Kennedy pp. 13-21.

Matrix Algebra

Chang Chapter 4

2. The Classical (Normal) Linear Regression Model.

OLS Assumptions, Estimation, Gauss-Markov

Johnston and Dinardo 86-90; Kmenta pp. 207-248; Kennedy pp. 42-52.

3. Dealing with Violations of the Classical Assumptions.

Non-Zero Mean of Error, Nonnormal Errors, Heteroscedasticity, Autocorrelation, Stochastic Explanatory Variables, Multicollinearity

Kmenta pp 260-340; Kennedy pp. 113-136 and pp. 183-193; Johnston and DiNardo pp. 162-181; Goldberger pp. 245-253.

4. Generalized Least Squares.

Kmenta pp. 607-616; Johnston and DiNardo pp 152-153; and reading from previous section.

5. Hypothesis Testing and Restrictions.

Joint Tests, Restricted Least Squares, Finite vs. Asymptotic Tests.

Kmenta pp. 476-495; Kennedy pp. 55-61; Johnston and DiNardo pp. 90-99.

6. Model Selection.

Nested and Non-Nested Hypothesis Testing, Model Specification as Art and Science, Out-of-Sample Validation.

Kmenta pp. 593-600; Kennedy pp. 73-93; Johnston and DiNardo pp. 113-116.

7. System Estimation.

Seemingly Unrelated Regressions, Simultaneous Equations, 2SLS, 3SLS.

Kmenta pp. 635-648, 681-687, and 695-701; Kennedy pp. ; Johnston and DiNardo pp. 153-158.

8. Qualitative and Limited Dependent Variable Models.

Probit, Tobit, and Logit Models.

Maddala Chapters 1 and 2.