DUKE UNIVERSITY
Department of Economics
Barbara Rossi
ECON 341 Fall 2007
1st year graduate econometrics -- first part

Administrative Details

The Teaching Assistant for this course is Andrii Tsokol (his email is: andrii.tsokol@duke.edu).

My contact information is:

Office:	204, Social Science Building
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Homepage:	http://www.econ.duke.edu/~brossi
Course time & location:	T-Th 1:15-2:30PM, Room 220 Gray Building
Office Hours:	After class (T-Th 2:30-3:30PM) and by appointment

There will be weekly exercises. You are expected to work through all of the problems in the exercises and be prepared to discuss these in precept.

The texts for the course are the following (you can buy them at the Bryan Center or consult them at the library – the required book, Casella and Berger, is on reserve at Vesic Library):

(CB) Casella, George, and Roger L. Berger, *Statistical Inference*, Duxbury Advanced Series (required)
Additional readings: Greene, *Econometric Analysis,* Prentice Hall; Amemiya, *Advanced Econometrics*, Harvard Press; Hogg and Craig, *Introduction to mathematical statistics*, Prentice Hall; Rao, *Linear Statistical Inference and Its Applications*, Wiley

Reading List and Course Outline

1. Review of Probability Theory, conditional probability, independence, Bayes theorem
   CB: Chapter 1.1-1.3

2. Random variables, distribution functions, multivariate random variables
   CB: Chapter 1.4-1.6

3. Functions of random variables and transformations
   CB: Chapter 2

4. Selected distributions and multivariate generalizations
   CB: Chapters 3 and 4

5. Properties of a random sample, convergence concepts
   CB: Chapter 5

6. Asymptotics of functions of sample moments (CMT, Slutsky, Delta method)
   CB: Chapter 5

7. Sufficient statistics and the Likelihood function
   CB: Chapter 6

8. Point estimation and properties (bias, normality, Cramer Rao lower bound)
   CB: Chapter 7

9. MLE: consistency and asymptotic normality
   CB: Chapter 10

10. Hypothesis testing
    CB: Chapter 8 (required)

11. LM, Wald and LR tests
    R. Engle, chapter in *Handbook of Econometrics*, Vol. 2, Amsterdam: North Holland, 1995 (required).

12. Common families of distributions, and multiple random variables
    CB: Chapters 3-4 (required)

13. Properties of a random sample and principles of data reduction
    CB: Chapters 5-6 (required)

14. Point estimation
    CB: Chapter 7 (required)

15. Hypothesis testing, and
    R. Engle, chapter in *Handbook of Econometrics*, Vol. 2, Amsterdam: North Holland, 1995 (required).
    Lehmann, *Testing statistical hypotheses*, Springer (selected material)

<u>Midterm exam: Thursday October 4, in class</u>

Note. This reading list is subject to revisions.
Class participation is mandatory and modifications to this syllabus will be announced in class (this applies to exam dates as well as required readings).
You are welcome to work in groups but the work you hand in must be yours (exceptions will be allowed for empirical works, NOT for theoretical questions).
I reserve the right to punish cheating (in any form) in the way I consider appropriate.

Where to get the additional readings? Perkins library has most books under reserve. A copy of Engle's chapter will be available on Blackboard.