ECON 123A
Econometrics I
Fall, 2004

SYLLABUS

Time and Location:
Lectures: Tuesday and Thursday, 2:00pm - 3:20pm, in SSTR 100.
Labs (tentatively scheduled): Tuesday, noon-12:50pm, in SSL 122; or Monday, 4:00pm-4:50pm, in TBA. The instructor for the labs is Jeremy Verlinda (verlinda@uci.edu) and his office hours are Friday, 3:00pm-5:00pm.

Office Hours: W: 10:00am - 11:45am; SSPA 4175; telephone: (949) 824-3186
E-mail address: dpoirier@uci.edu.

Course Description: This course covers specification, estimation, and testing of econometric models necessary to prepare students for econometric study and empirical work. Topics include probability theory, distributions, sampling, and point estimation.

Pre-requisite: Mathematics 2A-B-C and 3A; Economics 10A-B, 30, and 100A-B-C. Students are assumed to have at a minimum a working knowledge of probability, statistics, and matrix algebra at the level of Appendices A-C in D. N. Gujarati’s Basic Econometrics (McGraw-Hill, 4th edition, 2003) used in ECON 30.

Grading: There are two open-book exams worth 1/3 and 2/3, respectively. Homework problems are covered in weekly laboratory sessions. Although homework assignments are not collected, their mastery is essential for satisfactory completion of the exams.

Course Materials (required):

Supplementary Course Materials: The following book may be helpful.
CLASS TOPICS, READINGS, AND HOMEWORK PROBLEMS

**Notation:** Tu = Tuesday, Th = Thursday. Exercises in **bold** are most important.

**Week 1: Bivariate Distributions**

Tu Sep. 28   Introduction; univariate probability distributions  
            Goldberger, Chapters 1-2

Th Sep. 30   Univariate expectation and bivariate probability distributions  
            Goldberger, Chapters 3-4

Laboratory: Exercises 2.2, **2.6, 2.10**, 2.12, 3.3, **3.6**

**Week 2: Sampling Distributions**

Tu Oct. 5    Bivariate expectations and statistical independence  
            Goldberger, Chapters 5-6

Th Oct. 7    Univariate and bivariate normals; sampling distributions: univariate case  
            Goldberger, Chapters 7-8

Laboratory: Exercises 4.1, 4.3, 5.1, 5.3, **5.4, 5.8, 6.2, 6.7**

**Week 3: Estimation I**

Tu Oct. 12   Asymptotic distribution theory; sampling distributions: bivariate case  
            Goldberger, Chapters 9-10

Th Oct. 14   Classical parameter estimation  
            Goldberger, Chapters 11-12

Laboratory: Exercises 7.3, 7.7, **8.5, 8.7, 9.3**, 9.6, 10.3

**Week 4: Estimation II**

Tu Oct. 19   Likelihood principle, Bayesian inference  
            Koop, Chapter 1; Handout
Th  Oct. 21  Bayesian point estimation
Handout

Laboratory: Exercises 11.3, 11.5, 11.10, 11.11, 12.1, 12.3

**Week 5: Midterm and regression**

Tu  Oct. 26  Bayesian interval estimation
Handout

Th  Oct. 28  MIDTERM EXAM (open-book, 1/3 of final grade, covers material up through Oct. 28)

Laboratory: Bayesian estimation; exercises to be handed out

**Week 6: Multiple Regression**

Tu  Nov. 2  Multiple regression
Goldberger, Chapter 13

Th  Nov. 4  Classical estimation in multiple regression
Goldberger, Chapters 14-15

Laboratory: Review midterm; computer instruction

**Week 7: Normal Multiple Regression**

Tu  Nov. 9  Matrix algebra formulation
Goldberger, Chapters 16-17

Th  Nov. 11  Veteran’s Day (no class)

Laboratory: Exercises 13.3, 14.3, 15.4, 16.2, 16.4, 17.1, 17.4

**Week 8: Normal Multiple Regression (continued)**

Tu  Nov. 16  Classical normal regression
Goldberger, Chapters 18-19

Th  Nov. 18  Hypothesis testing, p-values.
Goldberger, Chapters 20-22
Week 9: Multicollinearity and Pretesting

Tu Nov. 23 Multicollinearity, pretesting
Goldberger, Chapters 23-24

Th Nov. 25 Thanksgiving (no class)
Laboratory: Exercises 22.1, 22.4, 22.5, 23.1, 23.2, 24.1

Week 10: Regression: Bayesian Analysis

Tu Nov. 30 Bayesian simple regression
Koop, Chapter 2

Th Dec. 2 Bayesian regression
Koop, Chapter 3
Laboratory: Bayesian regression exercises to be handed out

Week 11: Exam Week

Th Dec. 9 FINAL EXAM (open-book; bring computer homework output; 2/3 of final grade), 1:30pm-3:30pm.