

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):

Goldberger, A. S., 1991, *A Course in Econometrics*, Harvard University Press.

Supplementary Course Materials: The following book may be helpful.

Koop, G., 2003, *Bayesian Econometrics* (Wiley).

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

Laboratory: Exercises **18.1**, 18.2, **19.3**, **20.1**, 20.2, 21.3, **21.6**

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.