STATISTICS FOR ECONOMISTS
ECONOMICS 103
FALL 2008

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Office Hours: TUE 3:30-5:00pm or by appointment.

Class Webpage: Blackboard Courseware (`http://courseweb.library.upenn.edu`)

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Office Hours: TUE, THU 3:30-4:30pm

This course is a semester long introduction to probability theory and statistical inference. It focuses on providing students with the tools for measurement of uncertainty in many different contexts with a particular emphasis on economic phenomena. The material covers elementary probability theory, sampling, estimation, hypothesis testing, correlation and regression. Special attention will be given to practical issues in interpreting and handling economic and social data. Empirical case studies that apply the techniques to real-life are brought up and discussed throughout the course.

This is a course in Economic Statistics, with calculus as a prerequisite. A two-semester sequence of mathematical statistics (430 and 431) can be taken instead to satisfy the statistics requirement of the major (see below). Econ 103 must be taken by any student who has already completed statistics at least at the level of Stat 101 or ESE 301. Students who have one semester of statistics (Stat 430) must take the second course in statistics or Econ 220 to satisfy the statistics requirement. Students are strongly advised to take the second course in statistics, rather than Economics 220. (Students with a one semester AP Statistics credit for Stat 101,Stat 111 or ESE 301 or higher can drop the credit in order to take Econ 103 via a release form available from the department.)

Note: Students who took STAT 111/112 or ESE 301/302 prior to, or in the Spring 2006 semester, can count that sequence as waiving out of the ECON 103 requirement. After Spring 2006, however, STAT 111/112 and ESE 301/302 will not be counted to satisfy any of the Economics Department statistics requirements. As of Spring 2008, STAT 101/102 will no longer satisfy the statistics requirements. Students who completed STAT 101 or STAT 101/102, STAT 111 or the 111/112 or ESE 301/302 sequence should enroll in ECON 103.

Departmental Course Policies: The Department of Economics has a common set of course policies which you should be aware of and is listed on `http://www.econ.upenn.edu/Undergraduate/Departmental%20Course%20Policies.htm`

Required Textbook: Newbold, Carlson and Throne, *Statistics for Business and Economics*, 5th or 6th Edition

Homework: I expect to assign around 8 homeworks during the semester.

Exams: There will be two in-class midterm exams and one final exam.

Grades:

- FINAL GRADE = 20% × PROBLEM SETS + 25% × MIDTERM 1 + 25% × MIDTERM 2 + 30% × FINAL.

- No late problem sets. Points forfeited.

Regrading of Exams: Any requests for regrading of exams must be submitted in writing *within one week from the date that exams are returned in class*, and must be done in written form. The one-week period for submission of exams for regrading begins on the date that the exams are returned in class, not on the date that you pick up the exam, if for some reason you are absent from class the day the exams are returned. If you miss the class during which the exams are returned, it is your responsibility to pick up your graded exam within the one-week period.

Software: I intend to assign a few empirical exercises. They can be done on Excel but you are free to use any other software such as Stata or R.

Calendar:

October 7: First Midterm Exam (tentative).

October 14: Fall Break.

November 6: Second Midterm Exam (tentative).

November 27: Thanksgiving.

December 16 (9:00-11:00am): Final Exam.

Course Plan (check course website for updates): (5th Edition) (6th Edition)

Preliminaries: Describing Data (NCT5 Ch.2 and 3) (NCT6 Ch. 2 and 3)

Part I: Introduction to Probability Theory

1. Probability models, conditional probability, independence, Bayes rule
   (NCT5 Ch.4) (NCT6 Ch.4)

2. Discrete Random variables
   (NCT5 Ch.5) (NCT6 Ch.5)

3. Continuous Random Variables
   (NCT5 Ch.6) (NCT6 Ch.6)

Part II: Introduction to Statistics

1. Sampling and sampling distributions
   (NCT5 Ch.7) (NCT6 Ch.7)

2. Point and interval estimation
   (NCT5 Ch.8) (NCT6 Ch.8 and 9)

3. Hypothesis testing
   (NCT5 Ch.9) (NCT6 Ch.10 and 11)

4. Linear regression
   (NCT5 Ch.10) (NCT6 Ch.12)