

Department of Economics  
Barnard College  
Fall 2001

Economics BC 2411: Statistics for Economics

Professor Sharon G. Harrison

**Course description:** This course will be both theoretical and practical. Probability and statistics are each both a science and an art. While probability is about quantifying randomness, statistics is about making decisions when faced with uncertainties. We will learn how to summarize the information available in large data sets with just a few figures, and how we can use these figures to make relevant decisions. We will link theory to data through the use of computers.

**Class meetings:** This class will meet Tuesday and Thursday from 1:10 to 2:25 pm.

**Administrative Information:** My office is in Room **7, Lehman Hall** and my phone number there is **854-3333**. You can also reach me by e-mail at **sh411@columbia.edu**. Office hours will be decided upon during the first week of class.

**Web access and computer use:** It is essential that you have access to the web. The home page for this course is

<http://www.econ.barnard.columbia.edu/~sharriso/f012411>

Homework assignments will be posted on the web and will involve accessing various web pages to retrieve data. You will analyze the data using SPSS for Windows, which is available in the computer labs at Barnard. You will learn SPSS in the first few weeks of the course.

**Textbook:** The required text for this class is: *Statistics for Business and Economics*, by McClave, Benson and Sincich, eighth edition. It is available at the Columbia University Book Store.

**Evaluation:** Your grade in this class will depend on your performance on: 1 midterm (30%), a cumulative final (40%), a research project (15%), and homework (15%). There will be no make-up exams given. The date of the midterm is Tuesday, October 23. The final is tentatively scheduled for Tuesday, December 18.

**The research project:** You will carry out the research project with one or two other students. The final product of the project will be a paper due near the end of the semester. However, you will be required to hand in evidence of your progress throughout the second half of the semester. Details will be discussed in class.

**Teaching assistant:** Your teaching assistant is **Anthony Marshall**. His e-mail address is **aem39@columbia.edu**. His office hours will be held in room 5a in the basement of Lehman Hall. In addition, he will hold two identical section meetings each week. Section will meet in the computer lab in room 401, Altschul Hall. The times for office hours and sections will be decided upon during the first week of class.

## (Rough) Schedule of Topics to be Covered

(Chapter numbers in (.) )

*WEEK 1:* Sept 4, 6:

- What is Statistics? (1)
  - Statistical thinking
  - Data
- Describing Data (2)
  - Qualitative and Quantitative Data

*WEEK 2:* Sept 11, 13:

- Describing Data (cont'd) (2)
  - Graphical and Numerical Methods

*WEEK 3:* Sept 18, 20

- Probability (3)
  - Events and probabilities
  - Random Sampling

*WEEK 4:* Sept 25, 27:

- Discrete Random Variables (4)
  - Probability Distributions and Expected Values
  - The Binomial Distribution

*WEEK 5:* Oct 2, 4

- Continuous Random Variables (5)
  - The Uniform and Normal Distributions

*WEEK 6:* Oct 9, 11

- Sampling Distributions (6)
  - Point Estimates and their Properties

*WEEK 7:* Oct 16, 18:

- Sampling Distributions (cont'd) (6)
  - The Central Limit Theorem
- Interval Estimation (7)
  - Large and Small Sample Confidence Intervals for Means

*WEEK 8:* Oct 23, 25:

- **Tuesday, Oct 23: Midterm**
- Interval Estimation (cont'd) (7)
  - Confidence Intervals for Proportions
  - Determining Sample Size

*WEEK 9:* Oct 30, Nov 1

- Hypothesis Testing (8)
  - Large and Small Sample Inferences

*WEEK 10:* Nov 6, 8:

- **Tuesday, Nov 6: Election Day Holiday**
- Hypothesis Testing (cont'd) (8)
  - P-values and Power of a Test

*WEEK 11:* Nov: 13, 15

- Inference Based on Two Samples (9)
  - Comparing Two Means
  - Comparing Two Variances

*WEEK 12:* Nov 20, 22:

- **Thursday, Nov 22: Thanksgiving Holiday**
- Introduction to Regression Analysis (10)
  - Least Squares
  - Inferences about the coefficients
  - Goodness of Fit

*WEEK 13:* Nov 27, 29:

- Catch-up and Review

*WEEK 14:* Dec 4, 6

- Presentations of Research Papers