Textbooks (available at Tufts bookstore and also on reserve in Tisch):

Prerequisites:
Basic calculus and graduate standing or instructor permission

Learning Objectives:
This course covers some probability and statistics concepts that are useful in social science research and that provide a foundation for econometrics. Over the semester we will: 1) develop intuition for key concepts, 2) formally derive a few important theorems, 3) begin our study of data analysis and inference, and 4) learn the basics of the Stata statistical software.

The Department of Economics’ Learning Objectives for economics students met by this class include:
- addressing economic questions using a toolkit of analytical methodologies, models and results.
- understanding the fundamentals of empirical research, including data gathering and analysis, hypothesis testing, and the use of statistical and econometric methods.
- reading and understanding applied econometrics articles from general-interest economics journals and from other academic outlets.

Outcomes will be measured in several ways. Short weekly quizzes and short weekly homework assignments will be used to encourage engagement and monitor progress. Three exams will be used to assess the level of theoretical knowledge and applied skills acquired in each section of the course.

Learning Approach:
The only way to learn statistics is by applying statistics. Active engagement in this class is essential.

I will promote engagement by:
- requiring class attendance.
- assigning weekly homework problems to be completed and submitted every Thursday.
- giving a weekly “5 minute” quiz on current material every Tuesday. (No make-ups will be given.)
- being available outside of class to answer questions or discuss problems.

In return, I ask you to:
- arrive on time and attend all class meetings.
- keep up by reading assigned material before class, reviewing it after class, and practicing answering questions.
- ask questions in class and during my office hours.
- see me well before an exam or deadline if you are having trouble or need special accommodations.
- convince me that you are taking the class seriously and making a significant effort.

Stata Assistance:
Mr. Benjamin Limoges will provide Stata assistance in Eaton 208 during dates/times to be listed on Trunk and www.tufts econ.com.
Grading:
To earn a grade in the “B- range” you will need to successfully memorize the basic material and correctly apply it to problems similar to those we have covered. To earn a grade in the “B to B+ range” you will also need to show evidence of understanding the material well enough to explain the intuition behind the problems. To earn a grade in the “A- to A range” you will also need to be able to correctly apply the material to new problems and explain the intuition behind those problems.

The weights to be used in computing final grades will be:
10%  Homework and Weekly Quiz Total  (after dropping your 2 lowest homework and 2 lowest quiz grades).
90%  Exams I, II & III  (the three exams count equally and are closed book, closed notes).

Class Honor Code:
Giving or receiving aid is not allowed on any quizzes or exams. Behavior during quizzes and exams should be above suspicion. It is permissible to study together on all out-of-class assignments and projects, but all out-of-class assignments and projects must be worked out and written up independently by each student (without assistance from others.) Our class honor code applies to quizzes, exams, homework, and any other work associated with the class.
Course Outline (the exam dates are firm, the other dates are approximate):

Descriptive Statistics (9/3)
WMS 1.1 – 1.5

Probability (9/3, 9/5, 9/10)
WMS 2.1 – 2.12

Discrete Distributions (9/12, 9/17)
WMS 3.1 – 3.4, 3.8 – 3.9, 3.11

Continuous Distributions (9/19, 9/24)
WMS 4.1 – 4.6, 4.8 – 4.10

Multivariate Distributions (9/26, 10/1)
WMS 5.1 – 5.11

Exam I (Thursday 10/3)

Functions of Random Variables (10/8, 10/10)
WMS Ch. 6.1 – 6.2, 6.4 – 6.5

Sampling Distributions (10/17, 10/22) (Tue 10/15 follows Monday’s schedule)
WMS 7.1 – 7.5

Estimation (10/24, 10/29)
WMS 8.1 – 8.3, 8.5 – 8.9

Estimator Properties and Estimation Methods (10/31, 11/5)
WMS 9.1 – 9.3, 9.6 – 9.8

Exam II (Thursday 11/7)

Hypothesis Testing (11/12, 11/14)
WMS 10.1 – 10.11

Introduction to Counterfactual Causality and Examples (11/19)
MW 1.1 – 1.6

Counterfactual Model (11/19, 11/21)
MW 2.1 – 2.7

Causal Graphs and Identification (11/26) (No class on Thurs 11/28)
MW 3.1 – 3.5

Matching Estimators (12/3, 12/5)
MW 4.1 – 4.7

Exam III (Thursday 12/12, 3:30 – 5:30pm)

(revised 9/2/13)