Economics 201
Statistics
Fall Semester

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Required Text (available for purchase at Tufts bookstore, free electronic version available through Tisch Library):

Recommended Workbook (available for purchase at Tufts bookstore):

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.

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 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. (Recitation attendance is recommended, but optional.)
- 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.

Instructor Office Hours & Appointments:
Your instructor is available during the office hours above and for short (15 minute) meetings at a variety of additional times. Use the Sign-Up function on the Ec 201 Trunk site to see the available times and to schedule meetings. These meetings must be scheduled at least 12 hours in advance.
Stata Assistance:
Ms. Nicole (Yingting) Fu and Mr. Morris Greenberg will provide Stata introductory sessions and Stata assistance in Eaton 208 during the dates and times listed on the Ec 201 Trunk site. Our Trunk site also contains a folder of introductory Stata documentation that is more than sufficient for our use of Stata in Ec 201.

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, and behavior during quizzes and exams should be above suspicion. Phones or other electronic devices may not be used during quizzes or exams (unless they are provided for the class by your instructor.) 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 midterm exam dates below are firm and the class will select one of the final exam dates by vote. The dates for the assigned readings are approximate. Each week I will post an assignment sheet on Trunk with details on the reading assignment for the week, the homework assignment for the week and the quiz topic for the week. The DB sections (from Devore and Berk) are required and the SAS chapters (from Spiegel, Schiller and Srinivasan) are recommended. You are not responsible for topics in SAS that we do not cover in our DB readings or in class.

Introduction and Descriptive Statistics  (9/8)
DB  1.1 – 1.4

Probability  (9/10, 9/15, 9/17)
DB  2.1 – 2.5
SAS  Ch. 1

Discrete Distributions  (9/22, 9/24)
DB  3.1 – 3.5
SAS  Chs. 2 - 4

Continuous Distributions  (9/29, 10/1)
DB  4.1 – 4.4 & 4.7
SAS  Chs. 2 - 4

Exam I  (Tuesday 10/6)
Multivariate Distributions (10/8, 10/13)  
DB 5.1 – 5.4  
SAS Chs. 2 - 4  

Sampling Distributions (10/15, 10/20)  
DB 6.1 – 6.4 & Appendix  
SAS Ch. 5  

Point Estimation (10/22, 10/27)  
DB 7.1 – 7.2  
SAS Ch. 6  

Interval Estimation (10/29, 11/3)  
DB 8.1 – 8.5  
SAS Ch. 6  

Exam II (Thursday 11/5)  

Hypothesis Testing (11/12, 11/17)  (11/10 follows Wednesday’s class schedule)  
DB 9.1 – 9.4  
SAS Ch. 7  

Two-Sample Inference (11/19, 11/24)  (No class 11/26)  
DB 10.1 – 10.6  
SAS Ch. 7  

Single Factor ANOVA (12/1)  
DB 11.1  
SAS Ch. 9  (only material on One-Way ANOVA)  

Simple Regression & Correlation (12/3, 12/8, 12/10)  
DB 12.1 – 12.3 & 12.5  
SAS Ch. 8  

Exam III (The day/time will be determined by class vote. The options are:
the official time of Tuesday 12/15, 3:30 – 5:30pm,
Monday 12/21 8:30 – 10:30am or Tuesday 12/22 8:30 – 10:30am.)  

(revised 9/2/15)