**Econ 184b**

**Econometrics (Spring 2017)**

Instructor: Professor Davide Pettenuzzo ([dpettenu@brandeis.edu](mailto:dpettenu@brandeis.edu))

Office and tel.: Sachar 122, x62834

Office hours: Wed 10:00 AM - 11:00 AM or by appointment

Teaching Assistants: TBD

Lecture room and times: Room TBD
   Tue & Thu, 2:00 – 3:20 PM (block 1)
   Tue & Thu, 3:30 – 4:50 PM (block 2)

Recitation room and time: TBD
   Wed, 6:30 – 7:20 PM (block 1)
   Wed, 7:30 – 8:20 PM (block 2)

**Course description**

This course provides an introduction to multiple regression methods for analyzing data in economics and related disciplines. Starting from the linear regression method, the course will extend to regression with discrete random variables, instrumental variables regression, analysis of random experiments and quasi-experiments, and regression with time series data. The objective of the course is twofold: (i) understand the logic and the key intuitions behind the various econometric procedures, and (ii) learn how to conduct – and how to critique – empirical studies in economics and related fields. Accordingly, the course will devote significant space to empirical applications. Through the use of econometric software and a variety of empirical data sets, you will have the opportunity to gain hands-on experience on how to conduct empirical work in econometrics.

Upon successful completion of the course you will:

- Understand the basic statistical assumptions underlying regression analysis and the situations in which these assumptions are appropriate;
- Be able to identify when the basic regression assumptions may be violated and to correct for these violations using appropriate techniques;
- Be able to critically assess empirical studies in economics and other professional journals;
- Have proficiency using STATA (a widely-used statistical software package);
- Be able to implement original research using the empirical techniques you have learned.

Prerequisites: Econ 80a and Econ 83a; Econ 80a may be taken concurrently.

Success in this 4 credit hour course is based on the expectation that students will spend a minimum of 9 hours of study time per week in preparation for class (readings, papers, discussion sections, preparation for exams, etc.).
Textbooks and reading material
The required textbook for the course is James H. Stock and Mark W. Watson, Introduction to Econometrics (3rd edition), Pearson/Addison Wesley, 2011. Additional readings will be posted on LATTE as the course progresses.

Evaluation
You will be evaluated on the following:

- Attendance and participation 10%
- Problem sets 20%
- Midterm 1 20%
- Midterm 2 20%
- Final exam 30%

Attendance and class participation: Learning in econometrics is cumulative; that is, each topic builds on the previous one. As a result, attendance is extremely important and will be required at all class meetings, including recitations. I will be collecting attendance sheets at the end of every class and recitation, and your participation during classes will count toward the final grade. Students are also expected to read the assigned materials and participate in class discussions on a regular basis. In their discussions the students must demonstrate their knowledge and understanding of the material covered up to that point in the course.

Problem sets: Various problem sets will be distributed during the semester (approximately, one every two weeks). Complete problem sets must be turned in at the beginning of the class on the due date. Late problem sets will not be accepted under any circumstances. To accommodate special circumstances (e.g. illnesses, unforeseen conflicts), I will drop the lowest score among your problem sets from the final grade calculation. If you would like, you may work in small groups of 2-3 people max to discuss the problem sets. However, you must write up answers individually. When you hand in your PS, make sure to list the members of your group. Note that if you simply copy your answers from one of your classmates in addition to receiving a zero on the problem set you will be in violation of Brandeis rules on academic honesty and may not receive credit for the course. Solutions will be posted on LATTE after you have handed in the problem set.

Midterms: Midterm dates are posted below in the course outline. Note that there will be no make-up midterms. If you think you may have to miss one of the midterms, you need to contact me before the exam and have a very good reason. If you miss one of them, and you have a very good reason for missing it, then more weight will be put on the other components of your grade. Note that in the absence of a valid reason, your grade on that midterm will be zero, and furthermore will count towards your final grade. Both midterms will be based on material covered up to the point at which the exam is held.

Final exam: The final exam will be cumulative, but with a stronger emphasis on the material covered after the second midterm. Please note that absence from final exam will excused only for a serious illness or family emergency which will need to be appropriately documented.

Course outline

- Week 1
  - Tue Jan 17: Introduction to the course
  - Thu Jan 19: Review of probability
- Week 2
  - Tue Jan 24: Review of probability (continued)
  - Thu Jan 26: Review of statistics – PS # 1
- Week 3
Disabilities
If you are a student with a documented disability on record at Brandeis University and wish to have a reasonable accommodation made for you in this class, please see me immediately.

Academic Integrity
You are expected to be familiar with and to follow the University’s policies on academic integrity (see http://www.brandeis.edu/studentlife/sdc/ai/). Instances of alleged dishonesty will be forwarded to the Office of Campus Life for possible referral to the Student Judicial System. Potential sanctions include failure in the course and suspension from the University.