THE HELLER SCHOOL FOR SOCIAL POLICY AND MANAGEMENT
BRANDEIS UNIVERSITY

HS404B-1
Applied Regression Analysis
Fall 2012

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Time: Tues & Thurs 9:00 – 10:20
Room: Tues., Thurs. G1
Comp Lab: TBD
TA: TBA

Course Description: This full semester course presents students with an introduction to the fundamentals of parametric statistics and regression analysis. We will cover the essentials required for students to understand issues related to measurement and how to generate descriptive information and statistical analyses from those measurements. The intent of the course is to provide the background to understand the process of statistical model building and the course will culminate in learning how to generate multiple linear regression analyses. To this end, the focus will be primarily on understanding the importance of summary measures (most notably central tendency and dispersion), along with a study of fundamental statistical distributions (Z, t, \( \chi^2 \), F).

Although some initial work will be done by hand, computers are an integral part of this course and we will begin utilizing Excel immediately. I will introduce you to the basics of formulae and functions in Excel, along with a detailed explanation of the Data Analysis add-in. In addition, as part of this class we will also STATA as our statistics/data analysis package.

Course Requirements: There will be both readings and assigned problem sets (graded) for each session. Problems sets need to be electronically submitted before class begins (as solution sets will be posted and discussion of the work done will comprise the first part of the next session). Students will be expected to have prepared thoroughly for class (reading the assigned text and completing problem sets) and can assume that they will be called upon to contribute to in-class discussions. These problem sets are a crucial aspect of this course as they provide the basis for assessing how well the material is being both conveyed and, more importantly, understood. We will have a mid-term (in-class and take-home parts), a practice paper (take-home) and a final (take-home). My expectations are that by course end students will feel comfortable presenting summary statistical information (both descriptive and inferential) and be able to present analyses using linear regression techniques.

Class times and computer lab: The class will meet twice a week, Tuesday and Thursday from 9:00 – 10:30 for lecture and discussion. Computer presentation is an integral part of the teaching so almost all of the basic instruction will be conducted using a computer display in class. We will discuss the computer lab arrangements during the first class.

Course Reading: We will have one required text for both HS404B and HS405B: An Introduction to Modern Econometrics Using Stata, by Christopher Baum. This book will not be available (or needed) until late September. One suggested textbook that might be useful in this course is Hinkle, Wiersma and Jurs, Applied Statistics for the Behavioral Sciences, Houghton Mifflin, although I am not making this a required text. If you do purchase this book it is a good basic statistics book which will be useful to have on your bookshelf for future reference. Several

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1 We will touch upon a small number of non-parametric topics, but the primary focus will be as described.
copies are available in the bookstore or you can order your own online. Any edition is fine—the latest edition is the 5th (and is therefore the most expensive). I will use a number of examples from this book.

The other texts we will use are readily available online at no cost; the electronic textbook from StatSoft (http://www.statsoftinc.com/textbook/statshome.html) and the HyperStat online Textbook (http://davidmlane.com/hyperstat/). Additional readings will be provided for download and will consist of one or more chapters from Crown, *Statistical Models for the Social and Behavioral Sciences*, Praeger Publishers, 1998, along with handouts on selected topics (to be determined).

**Grading:** The grade will be based upon a number of factors which are weighted approximately as: class participation (10%), problem sets (30%), midterm (25%) and the final (35%).

**Provisions for Feedback:** Feedback will be provided along a number of paths. The problem sets offer a rich weekly source on your progress, as well as in-class interactions. The midterm and final will also provide strong indications of your progress. I will also offer a minimum of two hours a week of office time during which I will be available if you have any problems/concerns about your work. As I spend much of my time online, e-mail questions are absolutely welcomed and I will respond as quickly as possible. The TAs are also available for individual or group work and will provide me another channel for feedback from students. I am absolutely available to any individual who would like to speak with me: just ask.

**Academic Integrity:** Academic integrity is central to the mission of educational excellence at Brandeis University. Each student is expected to turn in work completed independently, except when assignments specifically authorize collaborative effort. It is not acceptable to use the words or ideas of another person without proper acknowledgement of that source. This means that you must use footnotes and quotation marks to indicate the sources of any phrases, sentences, paragraphs or ideas found in published volumes, on the internet, or created by another student. Violations of university policies on academic integrity, described in Section 3 of *Rights and Responsibilities*, may result in failure in the course or on the assignment, and could end in suspension from the University. If you are in doubt about the instructions for any assignment in this course, you must ask for clarification.

**Notice:** If you have a documented disability on record at Brandeis University and require accommodations, please bring it to the instructor’s attention prior to the second meeting of the class. If you have any questions about this process, contact Mary Brooks, disabilities coordinator for The Heller School at maryeliz@brandeis.edu.
Note on Training before Classes begin

There will be two training sessions before the actual beginning of classes. *These sessions are required for the incoming MS students* and are optional/recommended for others in the class. We will meet from 2:45 – 5:15 on Wednesday, August 29th for an overview and introduction. The second meeting time will be arranged and announced. These two sessions are meant to offer students both a place to review/learn some required basics (overview of basic math and statistics, use of Excel, etc.) and to offer a gentle introduction to both the course and me, your instructor. I look forward to working with all of you.