Longitudinal Statistics is an elective sequel to the Sociology Department's introductory graduate-level statistics course. It would be helpful to have had the Department's course, *Advanced Multivariate Statistics*, but this is not necessary. The course will focus on a range of methods used to analyze data collected at multiple times. The main emphases will be on cohort analysis, time series, panel data and event history (survival) analysis. Illustrative examples will be drawn from the various social science and policy evaluation literature. We will be using a number of statistical packages, including SPSS, Stata, HLM and LISREL. The course grade will be based partly on homework assignments (50%), and partly on a term paper (50%). For the paper, students will choose a longitudinal data set, and analyze it using the methods taught in the course. There will be no exam.

Prospective students from outside the Sociology Department should consult the instructor regarding their preparation for this course. Auditors are welcome with consent of the instructor whether or not they meet all the prerequisites, provided there are empty seats. Students who anticipate doing quantitative research are strongly advised to take this course.

OFFICE LOCATION, OFFICE HOURS, ETC.

Puck Building: 295 Mercer St. 4th floor (office 4117)
tel. (212) 998-8345 or ext. 88345 from a campus phone
e-mail: David.Greenberg@nyu.edu or dg4@nyu.edu

Office hours: Mondays and Wednesdays: 3:45-4:45 PM and by appointment.

Class Hours: The class will meet Tuesdays between between 6:20 and 9 P.M. in 25 W. 4 St. C-6 (in the basement). We will not necessarily go until 9 PM at every session, but on some evenings we may. There will be no separate lab session. Instruction for the computer programs will be provided in class.

BlackBoard Site: I will use the NYU Blackboard Site to send out e-mail messages to the class, and to post data sets, handouts and any other course materials that can be easily posted. To access it, go to your NYU Home account: [http://home.nyu.edu](http://home.nyu.edu). Log-in using your NYU ID and password. You will see a section devoted to ACADEMICS. Click on that, and you will be able to access the Blackboard site for this course. Handouts will be in the Documents section of the site.

Fourth Floor Lab: Data sets will be posted on the Blackboard site for the course, and on the townhall drive in the Sociology Department computer lab at 295 Lafayette, 4th Floor under the name of Greenberg. SPSS, Stata, HLM (student version) and LISREL (student version) are available on both networks. Because this lab is primarily for the use of NYU graduate
students, students from other institutions may use it on a trial basis only. If this is impossible, you may find it more convenient to use any ACF lab. You should bring a diskette to class with you so that you can download data sets. Alternately, you may want to e-mail the data sets to yourself. Of course, you are welcome to acquire the statistical programs yourself. Student versions of HLM5 and LISREL can be downloaded free from www.ssc.org. Students can purchase the current version of Stata through its GradPlan for $450.00. You can do this through the Stata web site. Stata will forward your information to Diana Barnes in the Politics Department, and you will then pick up the installation disks from her. She is at 19 W. 4 St. Room 214, tel. (212) 992-9675.

Textbooks

Students should not purchase texts until after the first day of class.

Main Textbooks

Steven Finkel, *Causal Analysis with Panel Data* (Sage, 1995)

These books are available at Shakespeare and Company bookstore, on Broadway at Waverly Place, in the basement. They will also be placed on 2-hour reserve in Bobst Library.

Handouts will be distributed each week. These will be a major text for the course.

Additional readings will be placed on reserve in the Sociology Department.

Recommended Supplementary Texts


Two of these books: Box-Steinnsmeier and Jones, *Event History Modeling* and Hagle’s *Basic Math* are available at Shakespeare & Co.

**Provisional Schedule**


Readings for advantages of longitudinal data analysis over cross-sectional methods:


Readings for Age-Period-Cohort Analysis:


**TIME SERIES**


Readings: Ostrom, chs. 1,2


Serially correlated errors in time series. Causes, consequences, remedies. Estimating models involving serial correlation in SPSS and Stata.

Readings: Ostrom, chap. 3


Readings: Ostrom, chap. 4


Sept. 29. ARIMA models I. Univariate models. Examples in SPSS and Stata.

Readings: TBA

Applications:


Readings: David McDowall et al., *Interrupted Time Series*, chapters to be announced.

Applications:


Applications:


PANEL DATA


Oct. 27. Autoregressive panel models of change. Introduction to LISREL. Generalized method of moments, and Arellano-Bond estimation in Stata.

Readings: Finkel, chaps. 1-6. [or Kessler and Greenberg if you can get your hands on a copy]


Applications:


Nov. 3. Latent Growth Curve Models (multi-level modeling approach and structural equation modeling approach). Applications in HLM and LISREL. Finite Mixture Modeling.


David F. Greenberg and Michael Ezell, “Criminal Career Trajectories: Discrete or Continuous?”


EVENT HISTORY ANALYSIS

Readings for Introduction to Event History Analysis
BSJ chs. 1, 2, 3 (optional)


Applications of parametric methods (read one or two):


Discrete-time models

Readings: BSJ, chs. 4-9 (optional).
CGG, chs. 9-11


Applications of Proportional Hazard Models and Discrete Time Models (read one or two):

Proportional Hazard Models


Discrete Time Models


Readings: BSJ. chs. 9-10 (optional).
CGG, ch. 15

Applications:


Dec 8, 15. Student presentations.