DEPARTMENT OF SOCIOLOGY
UNIVERSITY OF PENNSYLVANIA

STRUCTURAL EQUATION MODELS
Sociology 611-301
Spring 2003

Paul D. Allison
276 McNeil
898-6717
allison@ssc.upenn.edu
www.ssc.upenn.edu/~allison

Ofc. Hours:
Tues. 1:30-2:30
Wed. 1:30-2:30

LECTURES. Tues. and Thurs. 9-10:30, 287 McNeil

CONTENT. Part 1 covers linear models with multiple equations and measurement error. The emphasis will be on LISREL-type models with multiple indicators of latent variables. Topics include classical test theory, path analysis with unmeasured variables, introduction to matrix algebra, confirmatory factor analysis, and the analysis of covariance structures.

Part 2 covers multilevel methods for longitudinal and clustered data. Topics include fixed-effects models, random effects and mixed models, GEE estimation, random coefficients models for discrete data.

READING. Required texts:

Rex Kline, *Principles and Practice of Structural Equation Modeling*
Ita Kreft and Jan de Leeuw, *Introducing Multilevel Modeling*

Recommended: Larry Hatcher, *A Step-by-Step Approach to Using the SAS System for Factor Analysis and Structural Equation Modeling.*

Students must also purchase lecture notes at Campus Copy, 3907 Walnut.

EXAMS. There will be a final exam. Format is not yet determined.

PROJECT. Students must turn in a research paper on or before May 5. The typical paper will report the analysis of some data set chosen in consultation with the instructor. Also acceptable is a mathematical analysis of some statistical procedure. The paper should consist of at least 10 pages of text, not including tables, notes and references. Collaborative projects are encouraged.

PREREQUISITES. Sociology 536 or equivalent. This means that students should have considerable familiarity and experience with ordinary-least-squares regression, and a basic knowledge of path analysis.

COMPUTING. There will be several computing assignments using the SAS System.

GRADING. Final grades will determined approximately as follows: assignments 20%, exam 35%, paper 45%.