In this course we will explore three of the most widely used advanced statistical methods in the social sciences: hierarchical linear modeling (HLM), also known as multi-level modeling; event history analysis (EHA); and structural equation modeling (SEM). We will also learn logistic regression and possible extensions to other categorical outcome techniques because it was not covered in SOC 570a. Each of these techniques has been developed to handle situations, data structures, outcomes, and research questions that are difficult, inappropriate, or impossible to handle using typical regression models (both linear and categorical).

READINGS

1. Required books -

2. Books recommended for purchase -

3. Other readings -
   All readings from non-required texts and other sources are available on D2L and/or the Sociology library.
REQUIREMENTS

Quiz 10%
7 application papers (5% each) 35%
Lead discussion of one application paper 5%
Homework Assignments (to be handed out regularly) 25%
Final Project 25%

CLASS SCHEDULE

Tuesday, August 27 – Introduction

Thursday, August 29 – Data management in STATA
  http://www.ats.ucla.edu/stat/stata/sk/default.htm

Tuesday, September 3 – Data management in STATA

Hierarchical Linear Modeling (HLM)

Thursday, September 5 – Introduction to HLM for Context
  Bryk and Raudenbush, pp. 3-10; chp 2

Tuesday, September 10 – HLM for Context
  Bryk and Raudenbush, pp. 99-130

Thursday, September 12 – HLM for Context


Tuesday, September 17 – Introduction to HLM for Change
Singer and Willett, chapter 2

Thursday, September 19 – NO CLASS

Tuesday, September 24 – HLM for Change
Singer and Willett, chapters 3 & 4

Thursday, September 26 – HLM for Change


**STRUCTURAL EQUATION MODELING (SEM)**

Tuesday, October 1 – Matrix Algebra
Bollen, pp. 449-465 and/or

Thursday, October 3 – Introduction to Structural Equation Modeling
Bollen, chapter 2

Tuesday, October 8 – Quiz

Thursday, October 10 – Simultaneous Equation Modeling (Path Analysis)
Bollen, chapter 4
Tuesday, October 15 – Simultaneous Equation Modeling (Path Analysis)


Thursday, October 17 – Confirmatory Factor Analysis

Bollen, chapter 7

Tuesday, October 22 – Confirmatory Factor Analysis


Thursday, October 24 –The General SEM Model

Bollen, chapter 8

Tuesday, October 29 – The General SEM Model


Thursday, October 31 – Multiple Group Analysis
Bollen, pp. 350-369

Tuesday, November 5 –

Thursday, November 7 – Extensions: Multiple Group Analysis


LOGISTIC REGRESSION

Tuesday, November 12 – Binary Logistic Regression

Thursday, November 14 – Binary Logistic Regression

Tuesday, November 19 – Binary Logistic Regression

Thursday, November 21 – Ordinal and Multinomial Logistic Regression

Tuesday, November 26 –

EVENT HISTORY ANALYSIS

Thursday, November 28 – NO CLASS, Happy Thanksgiving!

Tuesday, December 3 – Discrete-Time Event History Analysis
Singer and Willett, chapters 1 and 9

Thursday, December 5 – Discrete-Time Event History Analysis
Singer and Willett, chapters 10 and 11
Tuesday, December 10 –
Singer and Willett, chapter 12: sections 12.1, 12.3, 12.4, and 12.5
Application paper


Thursday, November 28 – NO CLASS, Happy Thanksgiving!

Tuesday, December 3 –

Thursday, December 5 –

Tuesday, December 10 –
Possible application papers

CFA

PATH ANALYSIS

GENERAL SEM