SOCIOLOGY 7213
Longitudinal Data Analysis
Fall 2018

SYLLABUS

Time: 1:30pm to 4:20pm, Thu
Location: 26 Stubbs Hall

Instructor: Rhiannon A. Kroeger
Email: rkroeger@lsu.edu
Office: 108 Stubbs Hall
Office Hours: 10:30am to 12:30pm, Tue & Thu

OBJECTIVES

This course provides an introduction to the analysis of longitudinal data—data which contain repeated measurements over time on the same individual unit (e.g. individuals, states, countries). The first half of the course introduces two approaches to analyzing change in a continuous dependent variable over time—econometric approaches (with a focus on fixed effects and random effects regression modeling) and multilevel models for change (i.e. growth curve modeling). The second half of this course deals with event history analysis (i.e. survival analysis, hazard rate models, etc.), which is a technique for modeling the transition from one status (or state) to another. Examples include life course transitions like marriage, birth, divorce, entry and exit from the labor force, etc. We will focus on discrete-time hazard and Cox proportional hazard models.

PREREQUISITES

Students should have completed the two-semester graduate statistics core sequence in Sociology (SOCL 7201-7203) or its equivalent. In particular, students should have good command of linear regression modeling and some knowledge of logistic regression modeling (which will be used for the discrete-time hazard models). The instructor assumes that students understand how to construct regression equations and how to perform statistical testing in regression analysis.

READINGS

The required textbooks for the course are:

[**SW**] Singer, Judith D. and John B. Willett. 2003. Applied Longitudinal Data Analysis: Modeling Change and Event Occurrence. Oxford University Press.

[**A**] Allison, Paul D. 2009. Fixed Effects Regression Models. Sage Publications.

In addition, several articles are assigned throughout the semester to compliment and provide examples for the text readings. All assigned articles will be posted to Moodle.

METHOD OF EVALUATION

This is an applied course. We will learn by applying the techniques learned in class to specific examples. For this reason, there will be several class periods that will be split between the seminar room (26 Stubbs) and the graduate computer lab (15 Stubbs). The course will rely on Stata. Stata (version 13) is available in the graduate computer lab (15 Stubbs). Prior knowledge of Stata is not required but students will be required to use Stata for the course assignments throughout the semester.

There will be 4 assignments covering the course material. Homework will be distributed one week before the due date and will be based on data sets from the readings and other sources that I will make available to you. In addition, you will turn in a final paper for which you will use the econometric, multilevel, or event history regression methods learned in class to analyze data of your choosing. The instructor will also provide a data set that can be used to complete the analysis for the final paper. The paper will not be required to have a lengthy literature review or discussion. Instead, it will include: a short introduction of the research question and its importance; a full data and methods section; and a full results section. The paper is due on Dec 3rd at 3pm.

The weighting of these various elements in the calculation of the final course grade will be:

Homework 1=	10%
Homework 2=	20%
Homework 3=	20%
Homework 4=	20%
Final Paper=	30%

The grades for assignments and final course grade will be based on the below scale. Please note that 'A+', which is above a 4.0, is a score that will be reserved for truly exceptional work.

97-100	A+
93-96.99	A
90-92.99	A-
87-89.99	B+
83-86.99	B
80-82.99	B-
77-79.99	C+
73-76.99	C
70-72.99	C-
67-69.99	D+
63-66.99	D
60-62.99	D-
59.99 & below	F

CHEATING AND PLAGIARISM POLICY

Cheating and plagiarism will not be tolerated! Please see the student code of conduct if you have questions about what constitutes cheating or plagiarism: (http://www.law.lsu.edu/academics/codeofstudentconduct/)

STATEMENT ON DISABILITY

Any student with a documented disability (via LSU disability services) needing academic adjustments or accommodations is requested to speak with me during the first two weeks of class. All discussions will remain confidential.

COURSE SCHEDULE

Date	Topic	Readings	Due
23-Aug	Introduction to Longitudinal Data	Ch. 1 (SW)	
30-Aug	Descriptive Analysis of Longitudinal Data	Ch. 2 (SW)	
6-Sep	Fixed Effects and Random Effects Models	Ch. 1-2 (A); Kroeger and Frank 2018	Homework 1 Due
13-Sep	Growth Curve Models using Multilevel Modeling	Ch. 3-4 (SW); Umberson et al 2009	
20-Sep	Growth Curves with Fixed and Random Effects	Teachman 2016	
27-Sep	Treating Time More Flexibly, Nonlinearity, and Discontinuous Change	Ch. 5-6 (SW)	
4-Oct	***Fall Holiday- No Class***		
11-Oct	Error Covariance Structures, Latent Growth Models	Ch. 7-8 (SW); Ch. 6 (A)	Homework 2 Due
18-Oct	Events and Event Occurrence Data	Ch. 9 (SW)	
25-Oct	Describing Discrete-Time and Continuous-Time Event Occurrence Data	Ch. 10, 13 (SW)	
1-Nov	Discrete-Time Hazard Models	Ch. 11-12 (SW); Kroeger, Frank, and Schmeer 2015	
8-Nov	Repeated Events, Unobserved Heterogeneity, Competing Risks in Discrete-Time Hazard Models		Homework 3 Due
15-Nov	Cox Models	Ch. 14-15 (SW); Reyes, Hardy, and Pavalko 2018	
22-Nov	***Thanksgiving Holiday- No Class***		
29-Nov	Extensions (Time-permitting): Fixed Effects, Random Effects, and Growth Models for Dichotomous Outcomes	Ch. 3 (A); Powers and Xie 2008	Homework 4 Due
Dec 3	Exam Week		Final Paper Due Dec 3 by 3pm

Note: Instructor reserves right to alter schedule if necessary