**SOCIOLOGY G93.3306-001**

**EVENT HISTORY ANALYSIS**

3:30 - 6:10 Wednesday  
Puck Building, 4th floor conference room

**INSTRUCTOR**  
Lawrence Wu, Department of Sociology, New York University  
lawrence.wu@nyu.edu or lwu@tourte.soc.nyu.edu

**OFFICE HOURS**  
2:30 - 4:30 Thursday or by appointment

**SUBJECT MATTER**  
This course surveys methods for analyzing event history data, with a focus on continuous-time models and estimation techniques. Topics include the exploratory analysis of event history data, nonparametric methods, right censoring, maximum likelihood estimation, alternative specifications for a time dependent baseline hazard rate, observed and unobserved heterogeneity, time-varying covariates, proportional and nonproportional models, multiple transition and competing risk models, left truncation and left censoring, and analogs of recursive and nonrecursive models. Major emphasis is placed on the logic, practical use, and estimation of models.

**ASSIGNMENTS**  
There are required readings, problem sets, and an empirical research paper. The main requirement is an empirical research paper along the lines of a research note or short journal paper. The paper should review relevant literatures, link these literatures to your outcome and data, and discuss results from your analyses. You are required to submit a 2–5 page paper proposal, a first draft, and final draft. Readings will be posted online. Students may be asked to discuss required readings and problem sets in class. Important dates are:

- Proposal               February 23, 2011
- First draft           April 6, 2011
- Final paper           May 11, 2011

**GRADING**  
The paper determines 75 percent of the final grade; the problem sets and class participation determine 25 percent. A passing grade requires that you complete all requirements, including the term paper, in a timely fashion. Incompletes will not be given.
TEXTS AND OVERVIEWS

There is no assigned text, but if you wish to purchase one, I recommend:


The following may also be useful:


Shorter works giving concise overviews from different perspectives include:


COURSE SYLLABUS

1. INTRODUCTION (JANUARY 26 - FEBRUARY 2)

JANUARY 26: Fundamentals

TOPICS


ADDITIONAL REFERENCES


FEBRUARY 2: Exploratory data analysis; nonparametric methods

TOPICS


READINGS


APPENDIX A


ADDITIONAL REFERENCES


2. SINGLE TRANSITION MODELS, PART I (FEBRUARY 9 - 23)

FEBRUARY 9: Modeling the baseline hazard; estimation

TOPICS

Alternative specifications for the baseline hazard. Parametric models (exponential, Weibull, Gompertz, Makeham, log logistic, log normal, sickle, Hernes, Coale-McNeil) and piecewise alternatives. Maximum likelihood estimation and inference.

READINGS


**FEBRUARY 16: The proportional hazard model**

**TOPICS**

The proportional hazard assumption. Incorporating proportional effects of covariates to obtain a hazard regression model. Maximum likelihood estimation and inference. The Cox model.

**READINGS**


**APPLICATIONS**


ADDITIONAL REFERENCES


FEBRUARY 23: The proportional hazard model continued

TOPICS


READINGS


APPLICATIONS


### 3. DATA AND SOFTWARE

**MARCH 2: Data and software**

**TOPICS**


**READINGS**

[No readings for this week; see class lecture notes.]

**ADDITIONAL REFERENCES**


4. SINGLE TRANSITION MODELS, PART II (MARCH 9 - MARCH 30)

MARCH 9: Left truncation, left censoring, multiple clocks, nonproportionality

TOPICS

Observation plan and sampling. Staggered entries into risk. Initial conditions, left truncation, left censoring. Multiple time dimensions. Nonproportional models.

READINGS

[No readings for this week; see class lecture notes.]

APPLICATIONS


ADDITIONAL REFERENCES


Tuma and Hannan, pp. 187–97.


MARCH 16: NO CLASS (spring break)
MARCH 23: Unobserved heterogeneity

TOPICS


READINGS


APPLICATIONS


ADDITIONAL REFERENCES


Trussell, James, and German Rodriguez. 1990. “Heterogeneity in Demographic Research.” In Julian Adams, Albert Hermalin, and David Lam (Ed.), *Convergent Issues in Genetics and Demography*. Oxford University Press.

**MARCH 30: Treatment selection on observables**

**TOPICS**


**READINGS**


**5. LINKED PROCESSES** (APRIL 6 - 20)

**APRIL 6: Sequential processes**

**TOPICS**

Hazard analogs of recursive path models for metric outcomes. Intervening events. Direct and indirect effects. Relationships between exposure and prevalence.

**READINGS**


**ADDITIONAL REFERENCES**

APRIL 13: Competing risks, multistate models

TOPICS

Classical competing risks. Interpretation of sub-hazard and sub-survival functions. Identification.

READINGS


Cox and Oakes, Chapter 9.


APPLICATIONS


ADDITIONAL REFERENCES


**APRIL 20: Models with correlated unobservables; diffusion models.**

**TOPICS**

Multiple origin and destination states with correlated unobservables. Diffusion models. Identification.

**READINGS**


**APPLICATIONS**


APRIL 27: Multivariate survival models

TOPICS


READINGS


APPLICATIONS


ADDITIONAL REFERENCES


8. WRAP-UP (May 8)

MAY 8: Simulation, bootstrap, Bayesian models, sequence analysis

TOPICS

The bootstrap. Bayesian estimation and inference. Sequence analysis.

ADDITIONAL REFERENCES

