

McGill University
Department of Sociology
Sociology 622 – Event History Analysis
Fall 2016

Professor: Céline Le Bourdais
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Office: Peterson Hall Room 314 **Phone:** 398-6840
Office Hours: Wednesday 10:00 – 11:30 and by appointment
Seminar / Lab: Leacock 212 **Time:** Tuesday, 8:35 – 11:25

Required text:

Cleves, Mario, William Gould and Yulia V. Marchenko. 2016. *An Introduction to Survival Analysis Using Stata*, Revised 3rd Edition. STATA Press. College Station, TX. (available at McGill Bookstore)

Other Material:

Online articles noted in Syllabus, lectures and exercises on *myCourses*.

General description and objectives:

This course is designed to introduce students to the practical application and interpretation of event history analysis (also known as survival analysis and hazard/risk analysis) in the social sciences. Event history analysis refers to a set of statistical methods used to analyze change from one state to another in longitudinal data that are able to explicitly model time dependence and the effects of independent variables on the timing and likelihood of the transition. Social life is replete with such transitions: examples on individual level include such things as marriage, births, divorce, entry into the labor market and entry into college.

The course will cover the basics of the method and data structure, and implementation using the software package STATA. Substantive topics will include parametric, semi-parametric and non-parametric models, as well as extensions to the analysis of multiple events and dealing with unobserved heterogeneity (frailty). Each topic will be explored through a combination of substantive examples, mathematical formulation, and practical application using STATA.

Students will become familiar with the logic of longitudinal analyses, and of event history analysis in particular. They will become comfortable with the evaluation and critique of empirical research employing event history analysis and will become competent in the application of standard and advanced methods of this type of analysis.

Evaluation:

There will be both laboratory exercises and homework assignments. These are designed to give you experience with the materials and methods covered in the readings and during the lecture

and discussion portions of the seminar. There will be five (5) exercises, which will be worth 18% a piece. Dates of distribution and collection are noted below in the tentative calendar of dates. Assignments must be submitted electronically in Adobe PDF format. The remaining 10% of the final course grade will reflect class participation in lectures and labs.

Disability and illness policies:

Individuals with university recognised disabilities will be afforded special considerations in the setting of examination times and venues and depending on the type of disability may be given extra time to complete the required work. Assignments and/or projects that are late due to illness will not be accepted without an authoritative third party excuse and explanation. Examinations will not be re-scheduled without the same considerations.

Academic Integrity:

McGill University values academic integrity. Therefore all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see www.mcgill.ca/integrity for more information).

Right to submit in English or French written work that is to be graded:

In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded.

Course Outline & Schedule

Week 1	September 6	Introduction: Longitudinal Data and Analysis. Stata and Data Sets
Week 2	September 13	Basic Concepts in Survival Analysis: Event, Timing, Spell, Censoring and Truncation
Week 3	September 20	Life Tables and Survivor Functions
Week 4	September 27	Maximum Likelihood Estimation and Parametric Models
Week 5	October 4	Parametric Models Continued: Changing Hazards with Time in Exponential Models; Piecewise Exponential Model
Week 6	October 11	Discrete Time Models
Week 7	October 18	Semi-parametric (Proportional Hazard) Models
Week 8	October 25	Time Varying Covariates and Interactions: Exponential and PH Models
Week 9	November 1	Non-Proportionality, Stratification and Interaction
Week 10	November 8	Specification/Model Selection/Residual Analysis
Week 11	November 15	Competing Risks
Week 12	November 22	Frailty and Repeated Events
Week 13	November 29	Special Topics/Review

Calendar of Exercises and Papers

	Distributed	Due
Exercise 1	September 20	September 27
Exercise 2	October 4	October 11
Exercise 3	October 11	October 18
Exercise 4	November 1	November 8
Exercise 5	November 22	November 29

Schedule and Readings

- 1. Introduction** (September 6)
Longitudinal data and analysis. Presentation of class data sets.
Introduction to Stata: Basic Commands, Help, [UCLA guide to STATA](#)
- 2. Basic Concepts in Survival Analysis: Event, Timing, Spell, Censoring and Truncation** (September 13)
Cleves et al., Chapters 1-5, Chapter 6 for lab
[Box-Steffensmeier, Janet M. and S. Jones Bradford, 1997. "Time is of the Essence: Event History Models in Political Science". *American Journal of Political Science* 41\(4\): 1414-1461.](#)
- 3. Life Tables and Survivor Functions** (September 20)
Cleves et al., Chapter 8
Proulx, Christine. 2014. "The Provision of Unpaid Care over the Life Course – Changes across Cohorts and Genders". Pp. 27-42 in *Juggling Spheres of Life: The Provision of Unpaid Care over the Life Course and Its Impact on Men's and Women's Employment Trajectories*. McGill University, Department of Sociology, Ph.D. thesis. (available on eScholarship@McGill)
- 4. Maximum Likelihood Estimation and Parametric Models** (September 27)
Cleves et al. Chapters 12-13
[Vuchinich, Samuel and Jay Teachman. 1993. "Influences on the Duration of Wars, Strikes, Riots, and Family Arguments". *The Journal of Conflict Resolution* 37\(3\): 544-568.](#)
- 5. Parametric Models Continued: Changing Hazards with Time in Exponential Models; Piecewise Exponential Model** (October 4)
Pacaut, Philippe, Céline Le Bourdais and Benoît Laplante. 2011. "The Changing Impact of Conjugal Status and Motherhood on Employment across Generations of Canadian Women". *Canadian Studies in Population* 38(3-4): 105-132. ([available on myCourse](#))
- 6. Discrete Time Models** (October 11)
[Allison, Paul D. 1982. "Discrete-Time Methods for the Analysis of Event Histories. *Sociological Methodology* 13: 61-98.](#)
[South, Scott J. 2001. "Time-Dependent Effects of Wives' Employment on Marital Dissolution". *American Sociological Review* 66\(2\): 226-245.](#)
- 7. Semi-parametric (Proportional Hazard) Models** (October 18)
Cleves et al., Chapters 9.1-9.2, 10.1-10.3, 11
[Stewart, Susan D. 2002. "The Effect of Stepchildren on Childbearing Intentions and Births". *Demography* 39\(1\): 181-197.](#)
- 8. Time Varying Covariates: Exponential and PH Models** (October 25)
Cleves et al., Chapter 10.5

[Uggen, Christopher and Jennifer Janikula. 1999. "Volunteerism and Arrest in the Transition to Adulthood". *Social Forces* 78\(1\): 331-362.](#)

Le Bourdais, Céline, Ghyslaine Neill and Nathalie Vachon. 2000. "Family Disruption in Canada: Impact of the Changing Patterns of Family Formation and of Female Employment". *Canadian Studies in Population* 27(1): 85-105. (available on *myCourse*)

9. Non-Proportionality, Stratification and Interaction (November 1)

Cleves et al., 9.3, 10.4, 15.0

[Le Bourdais, Céline, Hélène Desrosiers and Benoît Laplante. 1995. "Factors Related to Union Formation Among Single Mothers in Canada". *Journal of Marriage and the Family* 57\(2\): 410-420.](#)

10. Specification/Model Selection/Residual Analysis (November 8)

Cleves et al., Chapter 14

Other reading TBA

11. Competing Risks (November 15)

Cleves et al., Chapter 17

[de Graaf, Paul M. and Matthis Kalmijn. 2003. "Alternative Routes in the Remarriage Market: Competing-Risk Analyses of Union Formation after Divorce". *Social Forces* 81\(4\): 1459-1498.](#)

12. Frailty and Repeated Events (November 22) – Invited lecturer: Benoît Laplante (INRS)

Cleves et al., Chapters 9.4, 15.1

Other reading TBA

13. Special Topics/Review (November 29)