

# Quantitative Research Methods Comprehensive Exam

## READING LIST

UNIVERSITY OF TORONTO,

DEPARTMENT OF SOCIOLOGY

Last update: April 2014

**Area's Standing Committee, 2014-15:** Brent Berry (chair), Bob Andersen, Blair Wheaton

**Other faculty in the area (alphabetical order):** David Brownfield, Eric Fong, John Kervin, Scott Schieman, Markus Schafer, Geoffrey Wodtke

### REQUIRED READINGS

**Total number of reading units (excluding supplemental):** 145 units

The reading list includes required readings and supplementary readings. Supplementary readings include references to works that will facilitate further study of a particular topic. Supplementary sections also include related work by faculty in the Department of Sociology at the University of Toronto. Students must read all 140 required reading units plus 10 supplementary reading units selected from any two topics, for a total of 150 reading units. Although there are some exceptions, units typically determined as follows:

- 1 large book > 100 pages = 5 reading units
- Small books and parts of larger books = 2-3 reading units, depending on amount of pages assigned
- 1 journal article or book chapter = 1 reading unit

### MODULES

1. Background Readings (15 units)
2. Generalized Linear Models and Related Methods (30 units)
3. Loglinear Models, Latent Class Models and Related Methods (15 units)
4. Causal Models, Graphical Chains, and Structural Equations (25 units)
5. Multilevel Models and Contextual Effects (15 units)
6. Methods for Longitudinal Data (25 units)
7. Inference and Data Issues (20 units)
8. Software Considerations (Supplementary)

## **1. Background Readings (15 units)**

- Goodman, Leo A. and Michael Hout, "Statistical Methods and Graphical Displays for Analyzing How the Association Between Two Qualitative Variables Differs Among Countries, Among Groups, or Over Time, Part II: Some Exploratory Techniques, Simple Models, and Simple Examples." *Sociological Methodology* 31 (2001, ed. M.E. Sobel and M.P. Becker): 189-221. (1)
- Jacoby, W.G. 1998. *Statistical Graphics for Visualizing Multivariate Data*. (Sage University Paper series on Quantitative Applications in the Social Sciences, series no. 07-120). Thousand Oaks, CA: Sage. (5)
- Nettler, Gwynne. 2003. *Boundaries of Competence: How Social Studies Makes Feeble Science*. New Brunswick, N.J.: Transaction (chapters 1-2) (1)
- Raftery, A. E. (2001). Statistics in Sociology, 1950-2000: A Selective Review. *Sociological Methodology*, 31, 1-45. (1)
- Tufte, Edward R. 2001. *The Visual Display of Quantitative Information*. (2nd ed.). Cheshire, Conn. Graphics Press. (read chapters 1-3) (2)
- Tukey, John W. 1977. *Exploratory Data Analysis*. Addison-Wesley. (5)

### **Supplemental Readings:**

- Aneshensel, Carol S. 2002 *Theory Based Data Analysis for the Social Sciences*. CA: Pine Forge.
- Blalock, H.M. 1968. "The measurement problem: a gap between the languages of theory and research." Pp. 5-27 in Blalock, Hubert M. and Ann Blalock (eds.) *Methodology in Social Research*. New York: McGraw-Hill.
- Cortina, Jose M. 1993. "What is Coefficient Alpha? An Examination of Theory and Applications." *Journal of Applied Psychology*, 78: 98-104.
- Nettler, Gwynn. 1970. *Explanations*. New York: McGraw-Hill.
- Suen, H.K. 1990. "Basic Concepts of Item Response Theory." Pp. 83-98 in H.K. Suen (ed.) *Principles of Test Theories*. Lawrence Erlbaum Associates.
- Wheaton, B. 2003. "When methods make a difference". *Current Sociology*. 51(5) 543-72.

## **2. Generalized Linear Models and Related Methods (30 units)**

### **2(a). Linear and Generalized Linear Models** (16 units)

- Fox, John. 2008. *Applied Regression Analysis, Generalized Linear Models, and Related Methods, Second Edition*. Thousand Oaks, Cal.: Sage.
- Frank, Kenneth A. 2000. "Impact of a Confounding Variable on a Regression Coefficient," *Sociological Methods and Research*, 29(2): 147-194.
- Long, J. S. 1997. *Regression models for categorical and limited dependent variables*. Thousand Oaks, CA: Sage.
- McCullagh, P. and J.A. Nelder. 1989. *Generalized Linear Models (2nd Edition)*. New York: Chapman & Hall.

### **2(b). Interpretation and Presentation of Statistical Models** (3 units)

- Firth, David. 2003. "Overcoming the reference category problem in the presentation of statistical models," *Sociological Methodology*, 33:1-18.
- Fox, J. 1987. "Effect Displays for Generalized Linear Models," Pp. 347-61 in *Sociological Methodology*, vol. 17, edited by C. C. Clogg. Washington, DC: American Sociological Association. -1997.
- Silber, J.H., P.R. Rosenbaum and R.N. Ross. 1995. "Comparing the Contributions of Groups of Predictors: Which Outcomes Vary With Hospital Rather than Patient Characteristics," *Journal of the American Statistical Association*, 90 (429): 7-18.

### **2(c). Nonparametric Regression** (11 units)

- Efron, B. 1981. Nonparametric standard errors and confidence intervals (with Discussion)." *Canadian Journal of Statistics* 9: 139-172.
- Fox, John. 2000. *Simple Nonparametric Regression*. (Sage University Paper series on Quantitative Applications in the Social Sciences, series no. 07-129). Thousand Oaks, CA: Sage.
- Hastie, T.J. and R. Tibshirani. 1990. *Generalized Additive Models*. London: Chapman Hall.

### **Supplementary Readings**

- Agresti, Alan. 2010. *Analysis of Ordinal Categorical Data*, Second Edition. Hoboken, New Jersey: John Wiley & Sons.
- Aldrich, J.H. and F.D. Nelson. 1984. *Linear Probability, Logit, and Probit Models*. Beverly Hills, CA: Sage Publications.
- Andersen, Robert. 2008. *Modern Methods for Robust Regression*. Sage University Paper Series on Quantitative Applications in the Social Sciences, 07-152. Thousand Oaks, CA: Sage.
- Barron, David N. 1992. "The Analysis of Count Data: Overdispersion and Autocorrelation." *Sociological Methodology*, Vol. 22. pp. 179-220.
- Becker, M. 1994. "Analysis of Cross-Classification of Counts Using Models for Marginal Distributions: An Application to Trends in Attitudes on Legalized Abortion." *Sociological Methodology*, P. Marsden (ed.). Oxford: Blackwell.
- Bishop, Y., S. Feinberg, and P. Holland. 1975. *Discrete Multivariate Analysis*. Cambridge: MIT Press.
- DeMaris, Alfred. 1992. *Logit Modeling*. Newbury Park, CA: Sage.
- Fox, John, and Robert Andersen. 2006. "Effect Displays for Multinomial and Proportional-odds Logit Models," *Sociological Methodology* 36(1) 225-255
- Fox, John. 2000. *Multiple and Generalized Nonparametric Regression*. (Sage University Paper series on Quantitative Applications in the Social Sciences, series no. 07-130). Thousand Oaks, CA: Sage.
- Harrell, Frank E, Jr. 2001. *Regression Modeling Strategies. With Applications to Linear Models, Logistic Regression, and Survival Analysis*. New York: Springer.
- Hastie, Trevor, Robert Tibshirani and Jerome Friedman. 2001. *The Elements of Statistical Learning. Data Mining, Inference, and Prediction*. New York: Springer.
- Powers, Daniel A. and Yu Xie. 2000. *Statistical Methods for Categorical Data Analysis*. Academic Press.

### **3. Loglinear Models, Latent Class Models and Related Methods (15 units)**

- Andrich, D. 1988. *Rasch Models for Measurement*. Newbury Park, CA: Sage.
- Clogg, C. 1982. "Using Association Models in Sociological Research." *American Journal of Sociology* 88: 114-134.

Hagenaars, J. 1993. *Loglinear Models with Latent Variables*. Newbury Park, CA: Sage.

**Supplemental Readings**

Alba, R. 1987. "Interpreting the Parameters of Log-linear Models." *Sociological Methods and Research* 16(1):45-77.

Clogg, C. and L. Goodman. 1986. "On Scaling Models Applied to Data from Several Groups." *Psychometrika* 51:123-135.

Duncan, O. D. 1975. "Partitioning Polytomous Variables in Multiway Contingency Analysis." *Social Science Research* 4:167-182.

Duncan, O.D. 1985. "Rasch Measurement: Further Examples and Discussion." Pp. 367-403 in *Surveying Subjective Phenomena*, Vol. 1., C. Turner and E. Martin (eds.). New York: Russell Sage.

Duncan, O. D. and J. McRae, Jr. 1978. "Multiway Contingency Analysis with a Scaled Response or Factor." *Sociological Methodology*, K. Schuessler (ed.). San Francisco: Jossey-Bass.

Goodman, L. A. 1969. "How to Ransack Social Mobility Tables and Other Kinds of Cross-Classification Tables." *American Journal of Sociology*, 75:3-40.

Hout, M. 1982. "Using Uniform Association Models." Pp. 115-128 in *Quantitative Criminology*, J. Hagan (ed.). Beverly Hills: Sage.

Hout, M. , O. D. Duncan, and M. Sobel. 1984. "Association and Heterogeneity." *Sociological Methodology* 14:145-184.

Knoke, D. and P. Burke. 1980. *Loglinear Models*. Beverly Hills: Sage.

Mare, R. D. and C. Winship. 1991. "Loglinear Models for Reciprocal and Other Simultaneous Effects." *Sociological Methodology*, 21:199-234.

McCutcheon, A. 1987. *Latent Class Analysis*. Newbury Park: Sage.

Raftery, A. 1986. "Choosing Models for Cross-Classifications." *American Sociological Review* 51:145-146.

Reiser, M. and K. Schuessler. 1991. "A Hierarchy for Some Latent Structure Models." *Sociological Methods and Research* 19: 419-465.

Weakliem, D. 1992. "Comparing Non-Nested Models for Contingency Tables." *Sociological Methodology*, P. Marsden (ed.). Oxford: Blackwell.

Winship, C. and R. Mare. 1989. "Loglinear Models with Missing Data: A Latent Class Approach." *Sociological Methodology*, C. Clogg (ed.). Oxford: Blackwell.

#### **4. Causal Models, Graphical Chains, and Structural Equations (20 units)**

##### **4(a). Causal Models** (12 units)

Alwin, D. F. and R. M. Hauser. 1975. "The Decomposition of Effects in Path Analysis." *American Sociological Review*, 40:37-47. (1)

Cook, Thomas D., and Donald T. Campbell. 1979. *Quasi-experimentation: Design and analysis issues for field settings*. Chicago: Rand McNally.

Cox, David R., and Nanny Wermuth. 1993. "Linear Dependencies Represented by Chain Graphs." *Statistical Science* 8: 204-18. (1)

Duncan, O. D. 1975. *Introduction to Structural Equation Models*. New York: Academic. Chapters 1-3. (2)

Pearl, Judea. 1998. "Graphs, Causality, and Structural Equation Models." *Sociological Methods and Research*, 27(2): 226-284. (1)

Stolzenberg, R. M. 1980. "The Measurement and Decomposition of Causal Effects in Nonlinear and Nonadditive Models." *Sociological Methodology*, 459-479.

Winship, C. and R. D. Mare. 1983. "Structural Equations and Path Analysis for Discrete Data." *American Journal of Sociology*, 89:54-110. (1)

##### **4(b). Structural Equations with Latent Variables** (13 units)

Bielby, W.T. and R. Matsueda. 1991. "Statistical Power in Nonrecursive Models." *Sociological Methodology* 21:167-197. (1)

Bollen, K. 1989. *Structural Equations with Latent Variables*. New York: Wiley. (5)

Bollen, K., and J. S. Long. 1993. *Testing Structural Equation Models*. Newbury Park, CA: Sage. (5)

Muthen, B. O. 1984. "General Structural Equation Models with Dichotomous, Ordered Categorical, and Continuous Latent Variable Indicators." *Psychometrika*, 49:115-132. (1)

Teachman, Jay; Duncan, Greg J; Yeung, W Jean; Levy, Dan. 2001. "Covariance Structure Models for Fixed and Random Effects." *Sociological Methods and Research*, 30 (2)271-288. (1)

### **Supplementary Readings**

Alwin, D. F. and D.J. Jackson. 1980. "Measurement Models for Response Errors in Surveys: Issues and Applications." Pp. 68-119 in *Sociological Methodology*, K.F. Schuessler (ed.). San Francisco: Jossey-Bass.

Berry, W. D. 1984. *Nonrecursive Causal Models*. Sage Series on Quantitative Applications in the Social Sciences. Newbury Park, CA: Sage.

Bollen, Kenneth A. 1995. "Structural Equation Models That are Nonlinear in Latent Variables: A Least-Squares Estimator." *Sociological Methodology*, Vol. 25. pp. 223-251.

Jae-On, Kim. 1984. "An Approach to Sensitivity Analysis in Sociological Research." *American Sociological Review*, 49:272-282.

Spirtes, Peter; Richardson, Thomas; Meek, Christopher; Scheines, Richard; Glymour, Clark. 1998. Using Path Diagrams as a Structural Equation Modeling Tool, *Sociological Methods and Research*, 27(2): 182-225.

Jasso, Guillermina. 1996. Exploring the Reciprocal Relations between Theoretical and Empirical Work: The Case of the Justice Evaluation Function. *Sociological Methods and Research*, 24 (3): 253-303.

Muthen, B. O. 1978. "Contributions to Factor Analysis of Dichotomous Variables." *Psychometrika*, 43: 551-560.

Reilly, Terence; O'Brien, Robert M. 1996. "Identification of Confirmatory Factor Analysis Models of Arbitrary Complexity: The Side-by-Side Rule." *Sociological Methods and Research* 24 (4): 473-491.

### **5. Multilevel Models and Contextual Effects (15 units)**

Chou, Chih-Ping, Peter M. Bentler, and Mary Ann Pentz. 2000. "A Two-Stage Approach to Multilevel Structural Equation Models: Application to Longitudinal Data." Pp. 33-51 in Todd Little, K.U. Schnabel, and J. Baumert (eds.), *Modeling Longitudinal and Multilevel Data*. Mahwah, NJ: Lawrence Erlbaum.

DiPrete, Thomas A. and Jerry D. Forristal. 1994. "Multilevel models: methods and substance." *Annual Review of Sociology* 20: 331-357. (1)

- Hox, Joop. 2000. "Multilevel analyses of grouped and longitudinal data." Pp. 15-32 in Todd Little, K.U. Schnabel, and J. Baumert (eds.), *Modeling Longitudinal and Multilevel Data*. Mahwah, NJ: Lawrence Erlbaum. (1)
- Raudenbush, Stephen and Anthony Bryk, 2002. *Hierarchical Linear Models: Applications and Data Analysis Methods*. Second Edition. Thousand Oaks, CA: Sage. (5)
- Raudenbush, Stephen W; Sampson, Robert. 1999. "Assessing Direct and Indirect Effects in Multilevel Designs with Latent Variables," *Sociological Methods and Research*, 128 (2): 123-153. (1)
- Robinson, W. S. 1950. "Ecological correlations and the behavior of individuals." *American Sociological Review* 15:351-7. (1)
- Snijders, Tom A.B. and Roel Bosker. 1999. *Multilevel Analysis*. Thousand Oaks, CA: Sage Publications. (5)

### **Supplemental Readings**

- Blalock, H.M. 1984. "Contextual-effects models: theoretical and methodological issues." In R.H. Turner and J.F. Short (eds.), *Annual Review of Sociology* 10: 353-372.
- Iversen, Gudmund R. 1991. *Contextual Analysis*. Newbury Park, CA: Sage.
- Hannan, Michael T. 1991. *Aggregation and Disaggregation in the Social Sciences*. (Revised Edition) Lexington: D.C. Heath
- Mason, William M., G.M. Wong, and B. Entwistle. 1983. "Contextual analysis through the multilevel linear model." Pp. 72-103 in S. Leinhardt (ed.), *Sociological Methodology*. San Francisco: Jossey-Bass.
- Rovine, Michael J., and Peter C.M. Molenaar. 2001. "A Structural Equations Modeling Approach to the General Linear Mixed Model." Pp. 65-96 in Linda M. Collins and Aline G. Sayer (eds.), *New Methods for the Analysis of Change*. Washington: American Psychological Association.
- Raudenbush, Stephen W., and Robert J. Sampson. 1999. "Ecometrics: Toward a Science of Assessing Ecological Settings, with Application to the Systematic Social Observation of Neighborhoods." *Sociological Methodology*, 29: 1-41.
- Raudenbush, S., C. Johnson, and R. Sampson. 2003. "A Multivariate, Multilevel Rasch Model with Application to Self-Reported Criminal Behavior." *Sociological Methodology*, ed. Ross Stolzenberg.



## **6. Methods for Longitudinal Data (25 units)**

- Allison, Paul. D. 1984. *Event History Analysis for Longitudinal Event Data*. Newbury Park, CA: Sage. (5)
- Barber, Jennifer S., Murphy, Susan A., Axinn, William G., and Jerry Maples. 2000. "Discrete-Time Multilevel Hazard Analysis," *Sociological Methodology*, Vol. 30. pp. 201-235. (1)
- Brockwell, Peter J. and Richard A. Davis. 2002. *Introduction to Time Series and Forecasting* (2nd ed.). N.Y. Springer. (5)
- Cox, D.R. and D. Oakes. 1984. *Analysis of Survival Data*. London: Chapman & Hall. (5)
- Curran, Patrick J., and Kenneth A. Bollen. 2001. "The Best of Both Worlds: Combining Autoregressive and Latent Curve Models." Pp. 105-136 in Linda M. Collins and Aline G. Sayer (eds.), *New Methods for the Analysis of Change*. Washington: American Psychological Association. (1)
- McArdle, John J., and Richard Q. Bell. 2000. "An Introduction to Latent Growth Models for Developmental Data Analysis." Pp. 33-51 in Todd Little, K.U. Schnabel, and J. Baumert (eds.), *Modeling Longitudinal and Multilevel Data*. Mahwah, NJ: Lawrence Erlbaum. (1)
- Muthen, Bengt. 1997. "Latent Variable Modeling of Longitudinal and Multilevel Data." *Sociological Methodology*, Vol. 27. pp. 453-480. (1)
- Singer, Judith, and John B. Willett. 2003. *Applied Longitudinal Data Analysis: Modeling Change and Event Occurrence*. New York: Oxford University Press. (5)
- Teachman, Jay, and Mark D. Hayward. 1993. "Interpreting Hazard Rate Models." *Sociological Methods and Research*, 21:340-372. (1)

### **Supplemental Readings**

- Allgulander, C. and L.D. Fisher. 1986. "Survival Analysis (or time or event analysis), and Cox Regression Models: Methods for the Longitudinal Psychiatric Research." *Acta Psychiatrica Scandinavica*, 74:529-535.
- Allison, Paul. 1982. "Discrete-time Methods for the analysis of event histories," Pp. 61-98 in S. Leinhardt (ed.), *Sociological Methodology*, 1982, San Francisco: Jossey-Bass.

- Diggle, Petter J., Patrick Heagerty, Kung-Yee Liang, and Scott L. Zeger. 2002. *Analysis of Longitudinal Data*, Second Edition. Oxford: Oxford University Press.
- Freedman, D. A., A. Thorton, D., Camburn, D., Alwin, D., and L. Young-DeMarco. 1988. "The Life History Calendar." Pp. 37-67 in C. Clogg, (ed.), *Sociological Methodology*. San Francisco: Jossey-Bass.
- Griffin, L. and L. W. Isaac. 1992. "Recursive regression and the historical use of 'time' in time-series analyses of historical processes." *Historical Methods* 25(4):166-179.
- Luke, Douglas A.. 1993. "Charting the process of change: a primer on survival analysis." *American Journal of Community Psychology* 21, 2: 203-246.
- McArdle, J.J., and Edward Anderson. 1990. "Latent variable growth models for research on aging." Pp. 21-44 in *Handbook of the Psychology of Aging* (3<sup>rd</sup> edition). J. E. Birren, and K. W. Schaie (eds.). San Diego: Academic Press.
- McArdle, J.J. and David Epstein. 1987. "Latent growth curves within developmental structural equation models." *Child Development* 58: 110-133.
- Ostrom, Charles W., Jr. 1990. *Time-Series Analysis: Regression Techniques*. 2nd edition. Beverly Hills: Sage.
- Singer, Judith D. and John Willett. 1991. "Modeling the Days of our Lives: Using Survival Analysis When Designing and Analyzing Longitudinal Studies of Duration and Timing of Events," *Psychological Bulletin* 110 (2): 268-290.
- Singer, Judith D. and John B. Willett. 1993. "Its About Time: Using Discrete Time Survival Analysis to Study Duration and the Timing of Events," *The Journal of Educational Statistics* 18 (2): 155-195.
- Willett, John B., Judith Singer, and Nina Martin. 1998. "The Design and Analysis of Longitudinal Studies of Development and Psychopathology in Context: Statistical Models and Methodological Recommendations." *Development and Psychopathology* 10: 395-426.
- Willett, John B. and A.G. Sayer. 1994. "Using covariance structure analysis to detect correlates and predictors of individual change over time." *Psychological Bulletin* 116 (2): 363-381.

## **7. Inference and Data Issues (20 units)**

### **7(a) Causal Inference (11 units)**

Manski, Charles F. 1993. "Identification Problems in the Social Sciences," *Sociological Methodology*, Vol. 23. pp. 1-56. (1)

Morgan, Stephen L. and Christopher Winship. 2007. *Counterfactuals and Causal Inference: Methods and Principles for Social Research*. Cambridge: Cambridge University Press. (5)

Sobel, Michael E. 1996. "An Introduction to Causal Inference," *Sociological Methods and Research*, 24 (3): 353-379. (1)

Special Issue of *European Sociological Review* on Causality. 2001. Volume 17 (1). [John H. Goldthorpe. "Causation, Statistics, and Sociology," 1-20; Ulrich Pötter and Hans-Peter Blossfeld. "Causal Inference from Series of Events," 21-32; Elja Arjas. "Causal Analysis and Statistics: A Social Sciences Perspective," 59-64; D.R. Cox and Nanny Wermuth. "Some Statistical Aspects of Causality," 65-74] (4)

### **7(b) Sampling and Design Effects (5 units)**

Groves, R. M., Fowler, F. J., Couper, M. P., Lepkowski, J. M., Singer, E., & Tourangeau, R. (2004). *Survey methodology*. Hoboken, NJ: Wiley. (read chapter 3: Target populations, sampling frames, and coverage error)

Groves, R. M., & Couper, M. P. (1998). *Nonresponse in household interview surveys*. New York: Wiley. (read pp. 15-46)

Hambleton, R.K., Swaminthan, H. and Rogers, H.J. 1991. *Fundamentals of Item Response Theory*. Newbury Park: Sage. Pp. 1-6.

Korn, Edward L. and Barry Grabard. 1991. "Epidemiological Studies Utilizing Surveys: Accounting for the Sampling Design." *American Journal of Public Health*, 81:1166-1173.

Presser, S., Couper, M. P., Lessler, J. T., Martin, E., Rothgeb, J. M., & Singer, E. 2004. Methods for testing and evaluating survey questions. . *Public Opinion Quarterly*, 68, 109-130.

### **7(c) Inference and Model Selection (4 units)**

Raftery, Adrian E. 1995. "Judging the Meaning and Significance of Statistical Results: Bayesian Model Selection in Social Research," *Sociological Methodology*, Vol. 25. pp. 111-163.

Raftery, Adrian E. 1999. "Bayes Factors and BIC: Comment on 'A Critique of the Bayesian Information Criterion for Model Selection,'" *Sociological Methods and Research*, 27, (3): 411-427.

Weakliem, David L. 1999. "A Critique of the Bayesian Information Criterion for Model Selection," *Sociological Methods and Research*, 27 (3): 359-397.

Western, Bruce. 1996. "Vague Theory and Model Uncertainty in Macrosociology." *Sociological Methodology*, Vol. 26. pp. 165-192.

#### **7(d) Other Issues with Inference (5 units)**

Allison, P. (2002). *Missing data*. Thousand Oaks, CA: Sage. (read pp. 1-12: Introduction; Assumptions; Conventional methods)

Allison, Paul D. 2000. Multiple Imputation for Missing Data: A Cautionary Tale. *Sociological Methods and Research*, 28 (3): 301-309.

Berk, Richard A., Western, Bruce, and Robert E. Weiss. 1995. "Statistical Inference for Apparent Populations." *Sociological Methodology*, Vol. 25. pp. 421-458

Davison, A.C. and D.V. Hinkley. 1997. *Bootstrap Methods and Their Application*. Cambridge University Press. (chapters 1-5)

#### **Supplemental Readings**

Abbott, Andrew. 1998. The Causal Devolution. *Sociological Methods and Research*, 127(2): 148-181. (1)

Berk, Richard. 1991. "Toward a Methodology for Mere Mortals." *Sociological Methodology*. 21, 315-324.

Freedman, D.A. "From association to causation: Some remarks on the history of statistics." *Statistical Science*, vol. 14 (1999) pp. 243–58. Reprinted in *Journal de la Société Française de Statistique*, vol. 140 (1999) pp. 5–32 and in *Stochastic Musings: Perspectives from the Pioneers of the Late 20th Century*. Lawrence Erlbaum Associates (2003) pp. 45–71. J. Panaretos, ed. [\[PDF-preprint\]](#) (1)

Lieberson, Stanley. 1985. *Making it Count: The Improvement of Social Research and Theory*. Berkeley: University of California Press.

Marini, Margaret Mooney; Singer, Burton, "Causality in the Social Sciences". *Sociological Methodology*, 1988, 18, 347-409

Schafer, J.L. 1991. *Analysis of Incomplete Multivariate Data*. Chapman & Hall/CRC.

Taleb, Nassim Nicholas. 2007. *The Black Swan: the Impact of the Highly Improbable*. New York: Random House.

## **8. Software Considerations (Supplementary)**

Allison, Paul. 1995. *Survival Analysis using the SAS System: A Practical Guide*. Cary, NC: The SAS Institute.

Bryk, Anthony S. et al. 1996. *HLM: Hierarchical Linear and Nonlinear Modeling*. Chicago: Scientific Software International.

Faraway, Julian. 2006. *Extending the Linear Model with R*. Chapman & Hall/CRC Texts in Statistical Science Series . Volume 66

Fox, John and Sanford Weisberg. 2011. *An R Companion to Applied Regression, 2<sup>nd</sup> Edition*. Sage.

Jones, Bobby L; Nagin, Daniel S; Roeder, Kathryn. 2001. "A SAS Procedure Based on Mixture Models for Estimating Developmental Trajectories." *Sociological Methods and Research*, 29(3): 374-393.

Long, S. J. 1983. *Confirmatory Factor Analysis: A Preface to LISREL*. Pp. 11-61. Newbury Park, CA: Sage.

Long, S. J. 1983. *Covariance Structure Models: An Introduction to LISREL*. Pp. 25-73. Newbury Park, CA: Sage.

Long, J. S. & Freese, J. 2005. *Regression models for categorical dependent variables using Stata*. 2nd Edition. College Station TX: Stata Press.

Murrell, Paul. 2006. *R Graphics*. Chapman and Hall/CRC.

Pinheiro, J.C. and D.M. Bates. 2000. *Mixed-Effects Models in S and S-PLUS*. New York: Springer-Verlag.

Singer, Judith D. 1999. "Using PROC MIXED to fit multilevel models, hierarchical models, and individual growth models." *The Journal of Educational and Behavioral Statistics*. Spring, 1999.

Tableman, Mara and Jong Sung Kim. 2004. *Survival Analysis Using S. Analysis of Time-to-Event Data*. Chapman & Hall/CRC.

Venables, W.N. and B. Ripley. 2002. *Modern Applied Statistics with S*, Fourth Edition. New York: Springer-Verlag.