

BIOSTAT 675

Survival Analysis

Fall 2008 Syllabus

- Lectures: Mon/Wed, 10:00-11:30, SPH-II Room 1112
- Instructor: Susan Murray (email: skmurray@umich.edu; office: M4515, SPH-II)
- Office Hours: TBA
- Text (required): J.P. Klein, and Moeschbeger, M.L. (2003).
Survival Analysis: Techniques for Censored and Truncated Data, 2nd Edition, New York: Springer.
- Computing: SAS: various PROCs, R
- Other Useful Texts:
 - Kalbfleisch, J.D. and Prentice, R.L. (2002). *The Statistical Analysis of Failure Time Data, 2nd Edition*, New York: Wiley.
 - Lawless, J.F. (2002). *Statistical Models and Methods for Lifetime Data, 2nd Edition*, New York: Wiley.
 - Allison, P.D. (1997). *Survival Analysis Using the SAS System: A Practical Guide*, Cary: SAS Institute.
- Grades: (tentative):
 - Homeworks (35%):
 - There will be homeworks approx every week and a half
 - students are encouraged to work in groups, but are required to write up their own answers
 - Tests (2×25%)
 - in-class; closed book; one piece of 8.5 by 11 inch paper allowed with notes for first exam; two pieces allowed for second exam

Final Project (15%):

- will be done in groups, with each group to submit a single write-up

Topics (not necessarily in this order):

- Introduction to survival data
- Functions of interest in survival analysis
- Nonparametric one-sample estimators
- One-, two- and k -sample hypothesis tests
- Methods for discrete failure times
- Counting processes
- Parametric survival models
- Cox regression model
 - partial likelihood
 - inference
 - time-dependent covariates
 - non-proportional hazards model
 - model diagnostics
- Competing risks
- Additive hazards model
- Multivariate survival