

Survival Analysis

General Information

Instructor: Yili Hong, PhD

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Class time and place: MWF 11:15am-12:05pm; Hutcheson 409

Office hours: MTWRF: 10am-11:00am or by appointment

Resources

Textbook: John P. Klein and Melvin L. Moeschberger (2003). *Survival Analysis: Statistical Methods for Censored and Truncated Data (2nd Edition)*, Springer.

Computing language: R, available at <http://www.r-project.org/>

Course webpage: <http://filebox.vt.edu/users/yilihong/teaching/fall2009/stat5454.html>

Description

The objective of this course is to provide a comprehensive introduction to the principles and methods for the analysis of time-to-event data. Time-to-event data are common in biomedical and public health research, as well as in ecology, social science, and industrial research. As a master-level course, the primary focus will be on methods, data analysis, and interpretation of results, with examples from the biomedical and public health setting.

Outline

Topics	Reading
Basic quantities and models	Ch 2.1-2.3, 2.4-2.6
Censoring and truncation	Ch 3.1-3.5
Nonparametric estimation of basic quantities	Ch 4.1-4.4, 4.6, 5.2, 6.2
Hypothesis testing	Ch 7.1-7.6, 7.8
Semiparametric proportional hazards regression	Ch 8, Ch 9.1-9.4
Regression diagnostics	Ch 11
Competing risks	Ch 2.7, 4.7
Frailty model	Ch 13.3

Evaluation

Letter grade will be given based on homework (20%), one mid-term (20%), one course project (30%), and the final exam (30%).

Homework: problems are assigned at regular intervals. Turn them in at the beginning of the class on the date it is due. NO late homework will be accepted.

Mid-term: close-book, in-class

Final exam: close-book, materials after the mid-term exam

Project: students are expected to complete a project in which they acquire and analyze a set of time-to-event data, write a short report, and give a presentation.

Academic Integrity

Students are expected to abide by Virginia Tech's Community Standard for all work for this course (<http://www.honorsystem.vt.edu/>). Violations of the Standard will result in a failing final grade for this course and will be reported to the Dean of Students for adjudication. Ignorance of what constitutes academic dishonesty is not a justifiable excuse for violations.

Special Accommodation

As supported by Virginia Tech's Principles of Community (<http://www.vt.edu/diversity/principles-of-community.html>), all students will be treated equally. Those with special needs can be accommodated and should refer to the website <http://www.ssd.vt.edu/> for specific questions.