

## STAT 855. Lifetime Data Analysis (Spring 2022)

(<http://www.sfu.ca/~joanh/stat855web.html>)

(<https://canvas.sfu.ca/courses/65992>)

### Lectures

- Meeting time/place: TueThu 16:30 - 18:20 (PT), AQ5046  
(*Remote learning during Jan 10 - 24, 2022 via ZOOMA for Tue and ZOOMB for Thu*)
- Instructor: X. Joan Hu, SSC K10555, 778-782-6714, joanh@stat.sfu.ca
- Office hours: Thu 15:30 - 16:20, K10555 or by appointment  
(*Use ZOOMC during Jan 10 - 24, 2022*)

### Reference Books

- *Statistical Models Based on Counting Processes*, by Andersen, Borgan, Gill and Keiding
- *The Statistical Analysis of Failure Time Data* (2nd Ed), by Kalbfleisch and Prentice
- *Survival Analysis* (2nd Ed), by Klein and Moeschberger
- *Statistical Models and Methods for Lifetime Data* (2nd Ed), by Lawless
- *The Statistical Analysis of Recurrent Events*, by Cook and Lawless
- *Multistate Models for the Analysis of Life History Data*, by Cook and Lawless

### Approximate Course Outlines

- Part 1. Preliminaries
  - Introduction
  - Review of likelihood based approaches
- Part 2. Parametric inference:
  - Commonly used parametric models
  - Incomplete data structures
- Part 3. Nonparametric/Semiparametric approaches:
  - Kaplan-Meier estimator
  - Logrank test
  - Cox proportional hazards model
- Part 4. Further topics:
  - Counting process framework
  - More on incomplete data structures
  - Recurrent events and multistate processes
  - Alternative regression models
  - Other selected topics

### Computing

Your choice (R and SAS are recommended)

## **Evaluation**

- Homework Assignments (the best three out of four marks; 15% per assignment)
- Course Project: Phase I. (proposal) 10%; Phase II. (in class presentation) 20%; Phase III. (final report) 20%
- Participation (5%)
  - No late homework/project will be accepted unless due to illness evidenced by a medical note: please turn in the available portion, if you cannot complete the whole homework/project in time.
  - Group discussions are encouraged; however, the homework/projects to be evaluated should be independent work.
  - Discussions in-class are highly encouraged. The whole class will participate in evaluating the final presentations.