

SPRING 2018 - STAT 855 G100

LIFETIME DATA ANALYSIS (4)

Class Number: 8830 Delivery Method: In Person

Overview

COURSE TIMES + LOCATION:Tu, Th 2:30 PM – 4:20 PM
AQ 5005, Burnaby**EXAM TIME + LOCATION:****INSTRUCTOR:**Hu, Joan
joanh@sfu.ca
1 778 782-6714
Office: SC-K10555**PREREQUISITES:**

STAT 450.

Description

CALENDAR DESCRIPTION:

Statistical methodology used in analysing failure time data. Likelihoods under various censoring patterns. Inference using parametric regression models including the exponential, Weibull, lognormal, generalized gamma distributions. Goodness-of-fit tests. The proportional hazards family, and inference under the proportional hazards model. Stratification and blocking in proportional hazards models. Time dependent covariates. Regression methods for grouped data. Students with credit for STAT 806 may not take this course for further credit.

COURSE DETAILS:

This course introduces to students the most important statistical approaches in analyzing event history data. It includes parametric inferences with likelihood functions under various censoring patterns, and non/semiparametric inferences such as Kaplan-Meier estimator, logrank test, and the Cox proportional hazards model. Some advanced topics will be covered, including counting process framework, various forms of incomplete lifetime data (e.g., competing risks, interval censoring, and truncation), recurrent events and multi-state process, and alternative regression models to the Cox proportional hazards model.

1. Introduction
2. Likelihood-Based Parametric Inferences
3. Kaplan-Meier Estimator, Logrank Test, Cox Proportional Hazards Model
4. Counting Process Framework
5. Competing Risks, Interval Censoring and Truncation
6. Recurrent Events and Multi-State Process
7. Alternative Regression Models

Grading

Assignments

60

Projects

40

NOTES:***Above grading is subject to change***

Materials

REQUIRED READING:

RECOMMENDED READING:

Survival Analysis: Techniques for Censored and Truncated Data, 2nd ed., by John Klein and Melvin Moeschberger. Publisher: Springer

References:

1. Analysis of Survival Data, by Cox and Oakes
2. Counting Processes and Survival Analysis, by Fleming and Harrington
3. The Statistical Analysis of Failure Time Data, by Kalbfleisch and Prentice
4. The Statistical Analysis of Recurrent Events, by Cook and Lawless
5. Statistical Models and Methods for Lifetime Data, by Lawless
6. Statistical Models Based on Counting Processes, by Andersen, Borgan, Gill and Keiding
7. Survival Analysis Using SAS: A Practical Guide, Author: Paul Allison, Publisher: SAS Publishing

GRADUATE STUDIES NOTES:

Important dates and deadlines for graduate students are found here: http://www.sfu.ca/dean-gradstudies/current/important_dates/guidelines.html. The deadline to drop a course with a 100% refund is the end of week 2. The deadline to drop with no notation on your transcript is the end of week 3.

REGISTRAR NOTES:

SFU's Academic Integrity web site <http://students.sfu.ca/academicintegrity.html> is filled with information on what is meant by academic dishonesty, where you can find resources to help with your studies and the consequences of cheating. Check out the site for more information and videos that help explain the issues in plain English.

Each student is responsible for his or her conduct as it affects the University community. Academic dishonesty, in whatever form, is ultimately destructive of the values of the University. Furthermore, it is unfair and discouraging to the majority of students who pursue their studies honestly. Scholarly integrity is required of all members of the University. <http://www.sfu.ca/policies/gazette/student/s10-01.html>

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MODIFIED BY:

Department, Statistics Actuarial (stat) on 2017-11-22 11:58 AM

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