STAT 5603W: Reliability and Survival Analysis
Course Information, Winter 2014
Lectures: TR 11:35 am – 12:55 pm
Room: Canal Building 3400

Instructor: Sanjoy Sinha
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Office hours: TR 1:00 pm – 2:00 pm
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Marking Scheme: Assignments: 30% Midterm: 20% Final: 50%

Textbook: Modelling Survival Data in Medical Research by D. Collett

Statistical software: The statistical package R will be used for data analysis. R can be downloaded from the internet free of cost. It has many built-in functions that can be readily used for data analysis.

Prerequisite: Students are expected to have good background in statistical inference. It will be assumed that they are familiar with the basic concepts of point and interval estimation, hypothesis testing using model based likelihood methods as well as other nonparametric methods.

Course outline: The following topics will be covered throughout the term:

1. Features of survival data
2. Reliability of systems
3. Nonparametric procedures for analyzing survival data
4. Modelling survival data
5. Model checking in the Cox regression model
6. Parametric proportional hazards models
7. Accelerated failure time and other parametric models
8. Model checking in parametric models
9. Modelling with time-dependent variables

Midterm exam: Tuesday, February 25 (in class).
Final exam: To be scheduled by the university.

Reference books:
Smith, P. J. (2002). Analysis of Failure and Survival Data, Chapman & Hall/CRC.
Remarks:

1. Students wishing to see their final examination papers must make an appointment within two weeks of the examination.

2. The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website (www.carleton.ca/pmc) for the deadline to request accommodations for the formally-scheduled exam (if applicable).