

STATISTICS 806-4

Lifetime Data Analysis

Course Outline

Statistical methodology used in analyzing 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.

1. **Basic ideas**
2. **Some nonparametric and graphical procedures**
3. **Review of maximum likelihood large sample theory**
4. **Inference with specific lifetime distributions**
5. **Nonparametric/distribution free methods**
6. **Regression analysis**
7. **The proportional hazards model**
8. **Regression methods for grouped data**
9. **Longitudinal studies**
10. **Multivariate and multi-state problems**

Library Resources (copies of texts below are currently owned by the SFU Library)

Reference texts for Stat 890 are

- (1) Kalbfleisch, J.D. and Prentice, R.L. (1980).
The Statistical Analysis of Failure Time Data
Wiley & Sons
- (2) Lawless, J.F. (1982)
Statistical Models and Methods for Lifetime Data
Wiley & Sons
- (3) Cox, D.R. and Oakes, D. (1984)
Analysis of Survival Data
Chapman and Hall
- (4) Miller, R.G. (1981)
Survival Analysis
Wiley & Sons

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Students should be aware that they have certain rights to confidentiality concerning the return of course papers and the posting of marks. Please pay careful attention to the options discussed in class at the beginning of the semester.
