Final Exam

Next Friday, May 4, 8-11a, Rosenau 133

1. One-sided hand-written 8.5 x 11 page of notes
2. Calculator
3. Blank paper

Similar to midterm, but cumulative with emphasis on more recent material

Preparation:

- Notes/slides
- Homeworks
- 2014 and 2018 midterms, 2014 final
- Collett: Chapters 1-9, 11, 12, 15; Appendix A

Review for Final

PH model formulation, interpretation

$$h(t|Z) = h_0(t)\exp(\beta Z) \text{ or } S(t|Z) = S_0(t)^{\exp(\beta Z)}$$

Partial, marginal likelihood based inference (no ties)

$$PL(\beta) = \prod_{i=1}^{L} \frac{\exp(\beta Z_i)}{\sum_{j \in R_i} \exp(\beta Z_j)}$$

Ties: Exact, Efron, Breslow, Discrete

Relation to logrank test

Estimating S, H

$$\hat{H}_0(t) = \sum_{i:\tau_i \leq t} \frac{D_i}{\sum_{j \in R_i} \exp(\hat{\beta} Z_j)}$$

Stratification vs indicator variables

Diagnostics: model fit, outliers, influential observations, PH assumption

Residuals: martingale, deviance, delta-beta, Schoenfeld

Time dependent covariates

$$PL(\beta) = \prod_{i=1}^{L} \frac{\exp(\beta Z_i(\tau_i))}{\sum_{j \in R_i} \exp(\beta Z_j(\tau_i))}$$

Sample size/power: Equation (15.1) Collett

$$d = \frac{4(z_{1-\alpha/2} + z_{1-\beta})^2}{\theta_R^2} \qquad n = \frac{d}{\Pr(\text{event})}$$

Competing risks, interval censoring, truncation

Reminder: Please fill out on-line course evaluation