

What to do today (2022/03/1)?

Part I. Preliminaries

Part II. Parametric Inference

Part III. Nonparametric/Semi-parametric Inference

Part III.1. Introduction and Overview: Motivation

Part III.3. Kaplan-Meier Estimator

Part III.3. Nonparametric Tests

Part III.4. Cox Proportional Hazards Model

Brief Summary of Part III

A. Practical Example

B. Talk on Survival Analysis by A.A. Tsiatis

C. Discussion about Homeworks 1, 2, and 3

Part IV. Advanced Topics

What to study next?

Part I. Preliminaries

Part II. Parametric Inference

Part III. Nonparametric/Semi-parametric Inference

- ▶ *Part III.1. Introduction and Overview*
- ▶ *Part III.2. Kaplan-Meier Estimator*
- ▶ *Part III.3. Nonparametric Tests*
- ▶ *Part III.4. Cox Proportional Hazards Model*
- ▶ *Brief Summary of Part III.*

Part IV. Advanced Topics

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Planning

▶ Data Analysis Project

- ▶ Phase I. Analysis Plan (the assignment to be out soon)
- ▶ Phase II. Presentation (the in-class presentation)
- ▶ Phase III. Analysis Report (the final project)

▶ Part IV. Advanced Topics (*Homework 4*)

- ▶ Part IV.1 Counting Process Formulation
(Revisits to KM estm, logrank test, and Cox PH model)
- ▶ Part IV.2 Selected Recent Topics in LIDA
 - ▶ Alternative models to Cox PH model: accelerated failure time model (AFT), linear transformation model, ...
 - ▶ Multivariate survival analysis
 - ▶ Other incomplete data structures: competing risk, interval censoring, current status, truncation, missing covariates in LIDA ...
 - ▶ *Alternative approach to the martingale-based one*
- ▶ Part IV.3 Beyond Lifetime Data Analysis