

The University of Maryland, College Park
Department of Epidemiology and Biostatistics
School of Public Health

EPIB 653: Applied Survival Analysis

Time and Place: Wednesday 4pm-6:45pm, room 1301, SPH Building #255

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Description: This course provides an introduction to time-to-event data analysis. Topics covered include: estimation of summary survival statistics based upon censored or truncated data employing the Kaplan-Meier procedure, tests of hypothesis for survival curves using the log rank procedure, Cox proportional hazards regression, analysis for censored or truncated data with extensions to time-dependent covariates and model building. Emphasis will be placed upon analyzing real health science data examples.

Objectives:

- Understand and distinguish analytical methods of time-to-event data from other types of measurements.
- Understand the concepts of censoring and truncation.
- Describe and calculate basic functions of survival time and understand their relationships.
- Apply some common parametric survival distributions (e.g., exponential, Weibull, log normal, log logistic, gamma, etc).
- Construct likelihood functions for survival data.
- Obtain and interpret Kaplan-Meier and Nelson-Aalen estimators.
- Conduct and interpret nonparametric tests for comparing survival curves.
- Use the Cox proportional hazards model to analyze survival data.
- Assess the fit of the proportional hazards model.

Prerequisites: EPIB650 and EPIB651 or equivalent courses

Textbook: Klein, J.P. and Moeschberger, M.L.(2003) *Survival Analysis: Techniques for Censored and Truncated Data, 2nd Edition*. New York: Springer-Verlag.