BSTA 6320: Biostatistics Methods II, Spring 2024

1. Background and Objectives

This is the second half of the methods sequence, where the focus shifts to methods for categorical and survival data.

Topics in Categorical include contingency tables and associated tests (excluding those covered in Methods I), generalized linear models for contingency tables, logistic regression, Poisson regression, nominal and ordinal response models, conditional logistic regression.

Topics in Survival analysis include survival distributions, hazard distributions, censoring mechanisms, and truncation mechanisms. Topics also include parametric and nonparametric methods for estimation and inference, including the Kaplan-Meier estimator, exponential and Weibull models, log-rank tests, the generalized Wilcoxon test, the Cox proportional hazards regression and extensions to time-dependent covariates.

2. General Information

Course Directors: Sharon Xie (sxie@pennmedicine.upenn.edu)
        Warren Bilker (warren@pennmedicine.upenn.edu)

Teaching Assistant: Omar Vazquez (Omar.Vazquez@pennmedicine.upenn.edu)

Format: Lecture: Monday and Wednesday from 10:15 am - 11:45 am

Class Location: TBD

Office Hours: *Categorical:* Dr. Bilker-Wednesday TBD (601 Blockley Hall)
        Omar Vazquez – TBD
    Survival: Dr. Xie – TBD
        Omar Vazquez -   TBD

Credits: 1 course unit

Prerequisites: Linear algebra, multivariable calculus, BSTA 6300 (Biostatistics Methods I), BSTA 6200 (Probability), BSTA 6210 (Statistical Inference), BSTA 6510 (Introduction to Linear Models and Generalized Linear Models) (these courses may be taken concurrently).

Textbooks: An Introduction to Categorical Data Analysis – 3rd Edition, by Alan Agresti

    Survival Analysis – Techniques for Censored and Truncated Data – 2nd Edition, by John P. Klein & Melvin L. Moeschberger

    Not required, but helpful:
        Categorical Data Analysis – 3rd Edition, by Alan Agresti
        Applied Logistic Regression – 3rd Edition, by Hosmer, Lemeshow, Sturdivant.

Evaluation:

Homework assignments	30%
Midterm exam	35%
Final exam	35%