

BSTA 6320: Biostatistics Methods II, Spring 2026

1. Background and Objectives

This is a course on statistical methods, with a focus on methods for categorical data, including generalized linear models, and survival data.

Topics in Categorical include contingency tables and associated tests, generalized linear models, logistic regression, Poisson regression, nominal and ordinal response models, and 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: Ryan Jasper (ryan.jasper@pennmedicine.upenn.edu)
<https://pennmedicine.zoom.us/j/93832105206>

Format: Lecture: Tuesday and Thursday from 10:15 am - 11:45 am

Class Location: Anatomy-Chemistry 202

Office Hours: Categorical: Dr. Bilker- Wednesday 4:00-5:00 via zoom
<https://us04web.zoom.us/j/72481986219?pwd=idQlI5C9PjIqUdhdbAcldmHEvbky22.1>

Survival: Dr. Xie – TBD via zoom

Link will be added

Ryan Jasper – Monday 4:00-5:00 via zoom

Link will be added

Credits: 1 course unit

Prerequisites: Linear algebra, multivariable calculus, BSTA 6200 (Probability), BSTA 6210 (Statistical Inference), BSTA 6510 (Introduction to 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%