TENTATIVE - BIOM 6100: Foundations of Statistics, Fall 2025

1. Course Description

Technological advances have transformed biomedical research, making the generation of complex and high dimensional datasets routine, and underscoring the importance of statistical methods, including robust methods, for data analyses. This course will cover foundational topics in statistics, including probability, discrete and continuous distributions, estimation, confidence intervals, hypothesis testing, nonparametric methods, linear regression, categorical data analysis, survival analysis, and simulations. Emphasis will be placed on understanding the proper application and underlying assumptions of the methods presented. Laboratory sessions focus on the use of the R statistical package.

2. General Information

Course Director: Warren Bilker (warren@pennmedicine.upenn.edu)

Teaching Assistants:
Noah Hillman (Noah.Hillman@Pennmedicine.upenn.edu)
Shunzhou Jiang (Shunzhou.Jiang@Pennmedicine.upenn.edu)
Jennifer Ko (Jennifer.Ko@Pennmedicine.upenn.edu)
Sicong Yao (Sicong.Yao@Pennmedicine.upenn.edu)

Format:
Lecture: Thursday from 11:00 am – 12:30 pm (12 Weekly Lectures)
Class of 62 Auditorium , John Morgan Building (Note recorded)
(The week of Oct 2 lecture will be on Sept 20, same location)

Labs: Each student will signup for 1 lab (10 Weekly Labs, Starting Sept 8)
Monday 3-4:30, Smilow 11-146AB, Instructor: Jennifer Ko
Tuesday 2-3:30, Smilow 11-146AB, Instructor: Noah Hillman
Wednesday 1-2:30, Smilow 9-146AB, Instructor: Shunzhou Jiang (Nov 12 will be held in 11-146AB and Dec 3 will be held in Barchi Library)
Thursday 3:00-4:30, BRB 251, Instructor: Sicong Yao

Office Hours:
Dr. Bilker- Wednesday 11-12 via zoom
Noah Hillman – Wednesday 10-11, Richards D001
Shunzhou Jiang -
Jennifer Ko -
Sicong Yao -

Textbook: Rosner Fundementals of Biostatistics, 8th Edition, Boston:Brooks/Cole, Cengage Learning, 2011. Hardcopy or free download.
Link: https://shahealthcare.org/wp-content/uploads/2022/04/Fundamentals-of-Biostatistics-Bernard-Rosner_compressed.pdf

Evaluation:

Homework assignments	20%
Labs (Quizes)	20%
Midterm exam	30%
Final exam	30%