Course Description: An advanced course in survival analysis, intended to equip students with the knowledge necessary to apply and understand advanced techniques used in survival analysis, and to serve as a starting point towards methods research in the area. Lectures are a blend of concepts, estimation/inference, and applications. Some emphasis is given to competing risks, recurrent events and time-dependent covariates since these are incompletely described in the current literature. Methods for the analysis of more complex data structures are considered.

Credit: 0.5 credit hours

Course Prerequisites: BSTA 622 (may be taken concurrently), or permission of instructor

Lectures: Tue/Thu, 12:00-1:30 in Blockley Hall Room 701; (8/31 to 10/18)

Instructor: Douglas Schaubel, Ph.D (email: douglas.schaubel@pennmedicine.upenn.edu; office: Blockley Hall: 614)

T.A.: Zhuoran Ding (dingzh@pennmedicine.upenn.edu)

Office Hours: Instructor: Thursday: 2:00–3:00; other times are available by appointment.
TA: TBA

Text: Various book excerpts will be posted

Computing: SAS, R, Python (student’s choice)

Grading:

○ Homeworks: 60%
• Exam (24-hour take-home): 40% (To be assigned 10/13 at 5:00 pm; due 10/14 at 5:00 pm)

• Topics (ordering is approximate):
  ○ Introduction and fundamentals
  ○ One-sample estimators
  ○ Competing risks
  ○ Counting processes and Martingales
  ○ Two-sample tests
  ○ Proportional hazards regression
  ○ Additive hazards regression
  ○ Multivariate survival
  ○ Analysis of recurrent event data
  ○ Temporal process regression
  ○ Landmark analysis
  ○ Causal inference with censored outcomes
  ○ Modeling restricted mean survival time