BSTA 6510
Linear Models
Fall 2025 Syllabus
(last updated: 8/25/2025)

- Course Description: This is a first course in linear models covering both theoretical and applied aspects of linear regression.
- Credit: 1.0 credit hours
- Course Prerequisites: Permission of instructor (if student is in a degree program outside Biostatistics).
- Assumed knowledge: elementary statistics; familiarity with calculus; familiarity with matrix algebra
- Lectures: Mon/Wed, 1:45-3:00 in Room 701 of Blockley Hall (Aug 27 to Dec 8, 2025)

  Note: no lecture on the following dates: 9/15 (Big Data Conference); 11/26 (day before Thanksgiving)
- Instructor: Douglas Schaubel, Ph.D, Professor of Biostatistics

  email: douglas.schaubel@pennmedicine.upenn.edu

  office: Blockley Hall: room 614
- T.A.: Andrew Lakkis (Andrew.Lakkis@pennmedicine.upenn.edu)
- Office Hours: Instructor: Mon/Wed: 3:00-3:30 (Blockley, 614); other times available by appointment.

  TA: TBA
- Text: *Introduction to Linear Regression Analysis*, 6th Edition by Montgomery, Peck and Vining (Wiley)

- Computing: SAS, R, Python (student's choice)
- Grading:
  - Homeworks (~ 8): 30%
  - Mid-term Test (Wed 15 Oct; 1:45-3:15): 30%
  - Final Exam (Mon 8 Dec; 1:45-3:15): 40%
- Policies:
  - Attendance: Students are expected to attend lectures (which will not be recorded).
  - Absence from exams: A student who is unable to take an exam must notify the instructor in advance; the default score on missed exam is zero.
  - Late homework: Homeworks submitted late will be penalized 20% per day late.
  - Grading: Exams and homeworks will be graded and returned within two weeks of the due/exam date.
- Topics (list is approximate):
  - Introduction/Review
  - Simple linear regression
  - Multiple regression
  - Analysis of Variance (ANOVA)
  - Residual diagnostics
  - Transformations
  - Influence diagnostics
  - Multicollinearity
  - Model selection
  - Model validation