

Statistics 600

Applied statistics and data analysis I

Instructor: Kerby Shedden
Office: 461 West Hall
E-mail: kshedden@umich.edu
Office hours: TBA
Course web page: www.stat.lsa.umich.edu/~kshedden/Courses/Stat600

Course description: This is an advanced introduction to regression modeling and prediction, including traditional and modern computationally-intensive methods. The following topics will be covered: (1) Theory and practice of linear models, including the relevant distribution theory, estimation, confidence and prediction intervals, testing, model and variable selection, generalized least squares, robust fitting, and diagnostics; (2) Generalized linear models, including likelihood formulation, estimation and inference, diagnostics, and analysis of deviance; and (3) Large and small-sample inference as well as inference via the bootstrap, cross-validation, and permutation tests.

Prerequisites: Knowledge of linear algebra; knowledge of regression and analysis of variance at the level of Stat 500; knowledge of probability and statistical theory at the level of Biostatistics 601/602.

Coursework: Midterms will be held in-class on October 15th and December 8th. Approximately 6 problem sets will be given during the semester. Problem sets will be posted to the course web page, and will be due in class approximately two weeks later. A capstone problem set covering the whole course will be due December 21st.

Grading: The final course grade will be weighted 30% from the problem sets, 25% from each midterm exam, and 20% from the capstone problem set.