

10. STAT 601.25 Longitudinal Data Analysis

Instructor: Alex de Leon and Karen Kopciuk

Prefer to offer in Winter 2013

Prerequisites: minimum STAT 429 (APPLIED REGRESSION ANALYSIS) or equivalent. STAT 635 (Generalized Linear Models) is also recommended. Familiarity with matrix notation as well as some statistical inference and estimation. Familiarity with statistical software packages SAS and R.

Intended audience: graduate students in statistics and biostatistics and quantitative students in disciplines such as Epidemiology, Psychology, Economics, Biology, Sociology, Engineering Nursing, and Education.

Description: Review of linear model theory. Graphical methods. Simple analyses and their limitations. Multivariate Normal Linear Models. Estimation. model selection and computational issues. Modelling the effects of covariates. Covariance modelling including random effects, hierarchical and marginal models. Residuals and Case Diagnostics. Generalized Linear models for longitudinal data. Missing Data. Advanced topics (if time permits) such as discrete longitudinal data, designs of longitudinal studies, and bivariate longitudinal variable.

Text:

Modeling Longitudinal Data by Robert E. Weiss (Springer Texts in Statistics), 2005, ISBN 978-0-387-40271-0

Or Applied Longitudinal Data Analysis by Garrett Fitzmaurice, Nan Laird and James Ware (John Wiley & Sons, Jan 2004, ISBN: 0471214876)

QA276.4 .C563 2001 2001 Longitudinal data and SAS : a programmer's guide, Cody, Ronald P.