Longitudinal data

- Normal response (General linear model) versus nonnormal response (Generalized linear model–link function, variance function);

- Balanced versus unbalanced;

- Unstructured mean (profile analysis–only for balanced data) versus structured mean (parametric model);

- Marginal model (covariance pattern–only for balanced data) versus conditional model (random effects).
Issues in generalized linear models

- Marginal models:
  - GEE approach does not specify joint distribution, only resulting variances and covariances in normal equations;
  - a copula would provide a complete specification;
  - a Gaussian copula is described by a correlation matrix, which could be patterned.
Random effect models:

- distribution of (unobserved) random terms;
- normal is natural choice—goodness of fit?
- effect on inferences?