

Getting started: types of models that can be fitted with HLM

The HLM program encompasses 5 modules that may be used to fit different types of models:

The HLM2 module is used to fit two-level linear and non-linear (HGLM) models. It offers the widest array of special features, output, and hypothesis testing options.

The HLM3 module is used to fit three-level linear and non-linear (HGLM) models. The range of features are similar to that of HLM2.

The HMLM module allows estimation of multivariate normal models from incomplete data. Within the framework of HMLM, it is possible to estimate models having

- An unrestricted covariance structure, that is, a full covariance matrix.
- A model with homogenous level-1 variance and random intercepts and/or slopes at level-2.
- A model with heterogeneous variances at level 1 (a different variance for each occasion) and random intercepts and/or slopes at level 2.
- A model that includes a log-linear structure for the level-1 variance and random intercepts and/or slopes at level 2.
- A model with first-order auto-regressive level-1 random errors and random intercepts and/or slopes at level 2.

HMLM2 allows for study of multivariate outcomes for persons who are, in turn, nested within higher-level units and offers similar modeling features as HMLM.

The HCM2 module is used for two-level cross-classified random effects models, where lower-level units are cross-classified by two higher-level units.

The options available for each module are listed in the overview of modeling options in HLM modules. Methods of estimation offered are discussed in the overview of estimation methods used in HLM.