CU DENVER
Research and Evaluation Methods Program

Multilevel Modeling
Spring 2021

Course Overview

This course (also called Hierarchical Linear Modeling) focuses on analyzing nested data – data structures commonly found in education (children within classrooms within schools), family studies (persons within families within neighborhoods within regions) and social geography. The course builds conceptually upon multiple regression, building models with predictors and partitioning of variance at each level of nesting. Models can take into account contextual influences at multiple levels, and can be applied to both experiments and correlational studies.

Course Goals & Learning Objectives

By the end of this course students will be able to:

- Understand and explain partitioning of variance across multiple units of analysis
- Design and apply models for analyzing experiments with random assignment at different levels of grouping (e.g., student, teacher, or school)
- Conduct a power analysis to determine the required number of randomly assigned units to attain a specified level of power given an estimated effect size
- Conduct and report correlational studies comparing the strength of predictors at two levels and at three levels of nesting
- Understand and interpret "value added" models used to evaluate teaching
- Analyze data in which repeated observations are nested within individuals (e.g., single case study designs in special education, periodic formative assessment in schools)
- Design, carry out, and report an original multi-level study using publicly available data

This course will be fully online with synchronous sessions every other Tuesday night from 5:00-7:45 pm. Email alan.davis@ucdenver.edu for more information.