Introduction to structural equation modeling

Basic modelling

Frank Pennekamp

29.10.2021

Department of Evolutionary Biology and Environmental Sciences

University of Zurich

Introduction of the Swiss SEM team

-<1>Dr. Frank Pennekamp (main instructor)

-<3>Dr. James Grace (advanced topics and model clinic)

-<2>Dr. Rachel Korn (course development)

- Dr. Noémie Pichon, Dr. Fletcher Halliday, Dr. Eliane Meier, Dr. Hugo Saiz, Dr. Debra Zuppinger-Dingley, Rebecca Oester, Annabelle Constance, Fabienne Wiederkehr

Schedule

- Day 1:
    - General introduction to SEM to model ecological systems
    - Fitting SEMs to data
    - Model pruning, visualization and reporting
    - Discussion with James Grace
- Day 2:
    - Latent and composite variables
    - Interactions
    - Complex sampling designs
    - Spatial autocorrelation
    - Discussion with James Grace
- Day 3:
    - Self-study with possibility to meet with instructor(s)

Overview

What the course is about

- Global estimation with R package lavaan
- Hands on exercises and live coding
- We will work (mostly) with a single, ecological dataset

What will not be covered

- Local estimation of SEMs (with piecewiseSEM)
- Advanced topics like incorporating random effects, feedbacks, temporal autocorrelation

Learning objectives

- Participants understand the benefits and limits of SEMs
- Participants are able to fit, interpret and visualize a SEM
- Participants are able to apply SEM to their own dataset

Questions?