Introduction to structural equation modeling

Frank Pennekamp

10/19/2021

Introduction of the team

- Dr. Frank Pennekamp (main instructor)

Swiss SEM team:
Dr. Noémie Pichon, Dr. Fletcher Halliday, Dr. Eliane Meier, Dr. Hugo Saiz, Dr. Debra Zuppinger-Dingley, Rebecca Oester, Annabelle Constance, Fabienne Wiederkehr, Dr. Rachel Korn, Dr. James Grace, Dr. Frank Pennekamp

Introduction of the team

- Dr. Frank Pennekamp (main instructor)
- Dr. James Grace (advanced topics and model clinic)

Swiss SEM team:
Dr. Noémie Pichon, Dr. Fletcher Halliday, Dr. Eliane Meier, Dr. Hugo Saiz, Dr. Debra Zuppinger-Dingley, Rebecca Oester, Annabelle Constance, Fabienne Wiederkehr, Dr. Rachel Korn, Dr. James Grace, Dr. Frank Pennekamp

Introduction of the team

- Dr. Frank Pennekamp (main instructor)
- Dr. James Grace (advanced topics and model clinic)
- Dr. Rachel Korn (course development)

Swiss SEM team:
Dr. Noémie Pichon, Dr. Fletcher Halliday, Dr. Eliane Meier, Dr. Hugo Saiz, Dr. Debra Zuppinger-Dingley, Rebecca Oester, Annabelle Constance, Fabienne Wiederkehr, Dr. Rachel Korn, Dr. James Grace, Dr. Frank Pennekamp

Schedule

- Day 1:

Schedule

- Day 1:
  - General introduction to SEM to model ecological systems

Schedule

- Day 1:
  - General introduction to SEM to model ecological systems
  - Fitting SEMs to data

Schedule

- Day 1:
  - General introduction to SEM to model ecological systems
  - Fitting SEMs to data
  - Model pruning, visualization and reporting

Schedule

- Day 1:
  - General introduction to SEM to model ecological systems
  - Fitting SEMs to data
  - Model pruning, visualization and reporting
  - Discussion with James Grace

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:

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

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

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

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

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

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:

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

What will not be covered

Overview

What the course is about

- Global estimation with R package lavaan
- Hands on exercises and live coding

What will not be covered

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

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)

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

Learning objectives

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

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