



Structural Equations Modelling

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Language: English

Schedule: Afternoon, from 15 to 19 hours.

Computing requirement

Students must bring a laptop to follow the course.

Objectives

The course aims to equip participants with the skills and knowledge to use Structural Equation Modelling (SEM) in JAMOVI and AMOS, focusing on political science applications.

By the end of the course, participants will be able to:

1. Use JAMOVI and AMOS Software:
2. Understand Key Statistical Concepts:
3. Construct and Analyse Path Models:
4. Develop Measurement Models:
5. Build Structural Models:
6. Apply SEM to Political Science:

Participants will gain practical experience and confidence in using SEM techniques for their research in political science.

Class schedule

The sessions will be held in the afternoon, from 15 pm to 19 pm.

Day 1 (September 12): introduction and basics of SEM

Session 1: introduction to JAMOVI and basics of SEM

- Introduction to JAMOVI
 - Installing and setting up JAMOVI
 - Overview of JAMOVI interface
 - Loading data sets
 - Basic data manipulation in JAMOVI
- Review of relevant statistical concepts
 - Correlation and covariance
 - Regression analysis
 - Path analysis



Session 2: introduction to path analysis and SEM

- Introduction to path analysis
 - Direct, indirect, and total effects
 - Specifying path models in JAMOVl
 - Hands-on session with a sample data set
- Key concepts of SEM
 - Latent variables
 - Observed variables
 - Measurement models vs. structural models
- Q&A

Day 2 (September 13): measurement model sans structural models

Session 3: measurement models

- Constructing measurement models
 - Confirmatory factor analysis (CFA)
 - Model diagnostics
 - Chi-square test
 - RMSEA, CFI, TLI, SRMR
 - Addressing model misspecification
- Practical examples in JAMOVl

Session 4: building a structural model

- Constructing a theoretical model
- Implementing the model in JAMOVl
- Interpreting structural paths and relationships
- Q&A

Day 3 (September 14): Introduction to AMOS, exercises and examples in political science

Session 5: political science data and models with AMOS

- Overview of common data sets in political science
- Constructing SEM
 - Importing a political science data set
 - Specifying the measurement and structural models in AMOS

Session 6: course balance

- Final Q&A
- Wrap-up and feedback

This program provides a strong foundation in SEM with practical exercises and examples tailored to political science, ensuring participants can apply SEM techniques to real-world political science research questions.



Bibliography

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- Guo, B., Perron, B. E., & Gillespie, D. F. (2009). A systematic review of structural equation modelling in social work research. *British journal of social work*, 39(8), 1556-1574.
- IBM Inc. (2022). SPSS AMOS structural equation modeling [Computer Software] (Version 29). Retrieved from <https://www.ibm.com/products/structural-equation-modeling-sem>
- Kline, Rex B. (2011). Principles and practice of structural equation modeling. New York: Guilford Press.