

Cluster Analysis and Latent Class Analysis

Objective

This course provides a hands-on introduction to group identification in data sets. Participants will develop a comprehensive understanding of the capabilities and limitations of cluster analysis and latent class analysis.

Description

When working with large data sets with many variables, cursory examination falls short in revealing potential groups. Cluster analysis and latent class analysis emerge as powerful tools in these scenarios. Cluster analysis utilizes various algorithms to identify similar entities, such as individuals or organizations, thereby forming distinct clusters. This method falls under the umbrella of unsupervised machine learning.

Conversely, latent class analysis employs a probabilistic model to ascertain group membership, leveraging data distribution and accommodating covariates. This method provides metrics for model fit, aiding in the comparison of models.

Topics covered will include hierarchical and non-hierarchical cluster analysis, fuzzy clustering, latent class analysis, latent profile analysis, and their longitudinal applications.

Methodology

The course will be interactive, blending lectures with practical exercises that can be undertaken individually or in groups.

Resources will include presentation slides, exercise scripts, annotated solutions, and curated readings.

Conditions

Participants should have a grounding in univariate and bivariate statistics. We will primarily use R. Prior experience with R is beneficial and recommended, but not mandatory, provided the participant has experience with other syntax-based statistical software (e.g., Stata, SPSS) and is open to learning new software. Basic data management skills in R or equivalent software are essential, including tasks such as variable recoding and handling missing values.

Trainer



Prof. Dr. Robin Samuel
University of Luxembourg

Robin Samuel has been a Professor at the Department of Social Sciences at the University of Luxembourg since 2016, where he was appointed Head of the Centre for Childhood and Youth Research in 2020.

Prior to this, Robin has conducted research at the universities of Basel, Bern, Cambridge, Edinburgh, Johannesburg, Pretoria, and Stanford.

His research is mainly concerned with the collection and analysis of large data sets. In some projects, he also applies experimental designs and qualitative methods.

Organizational Information

Language / Format	English / On campus
Target group	Doctoral Candidates at all stages and Postdocs (R2/R3) from the Humanities and Social Sciences
Date	Wednesday-Thursday, 12-13 June 2024, 9:00 – 16:00
Registration	For registration click here