



## Intermediate Workshop of the PRIN 2022 project

# Latent variable models and dimensionality reduction methods for complex data<sup>1</sup>

February 5-6, 2026  
Room III – Aula Seminari  
Department of Statistical Sciences  
University of Bologna

Link Teams: <https://teams.microsoft.com/meet/34416091721268?p=iVxkAZhR88TWKRX2it>

## Program:

### Thursday February 5, 2026

10:00–11:00 **Registration** and **coffee break**

11:00–11:15 **Paolo Giordani** (Università di Roma “La Sapienza”) – Project overview

11:15–12:15 **Geert Verbeke** (KU Leuven) – Joint models for high-dimensional longitudinal data (plenary talk) - Chair: **Paolo Giordani**

12:15–13:05 **Selection of variables and number of clusters I** - Chair: **Cinzia Viroli**

- ✓ **Leonardo Grilli**, Silvia Bacci, Emanuela Dreassi, Carla Rampichini (Università di Firenze) - Combining multiple imputation and the knockoff filter for variable selection, with an application to large-scale assessment data
- ✓ **Carla Rampichini**, Silvia Bacci, Leonardo Grilli (Università di Firenze) - Variable selection via the knockoffs filter for clustered data

13:05–14:15 **Lunch**

14:15-15:30 **Modelling mixed data** - Chair: **Silvia Cagnone**

- ✓ **Edoardo Redivo**, Cinzia Viroli (Università di Bologna) - Clustering categorical data to solve record linkage tasks
- ✓ **Christian Hennig** (Università di Bologna), Efthymios Costa (Imperial College London) - Outlier identification with mixed continuous and ordinal data
- ✓ **Maria Iannario** (Università di Napoli “Federico II”), Dimitris Karlis (Athens University of Economics and Business) - Mixture-Based Multivariate Modeling of Ordinal Dyadic Responses

15:30-16:20 **Advances in cluster analysis I** - Chair: **Marco Alfò**

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<sup>1</sup> Codice Progetto: 20224CRB9E

CUP: J53C24002550006:

Rif. bando: Bando indetto con D.D. del MUR n. 104 del 02/02/2022; D.D. n. 1401 del 18/09/2024 Disposizioni per lo scorrimento delle graduatorie



- ✓ **Giovanna Menardi**, Raul Zanatta (Università di Padova) - Nonparametric coclustering
- ✓ **Paolo Giordani** (Università di Roma "La Sapienza") - Soft clustering models for three-way data

16:20-16:50 **Coffee break**

16:50-17:40 **Advances in cluster analysis II** - Chair: **Christian Hennig**

- ✓ **Andrea Sottosanti**, Davide Risso, Francesco Denti (Università di Padova) - Spatially Regularized Gaussian Mixtures for Clustering Spatial Transcriptomic Data
- ✓ **Alfonso Iodice d'Enza**, Francesco Palumbo (Università di Napoli "Federico II"), Cristina Tortora (San Jose State University) - Association-Based Spectral Clustering for Mixed Data

### Friday February 6, 2026

09:30–10:20 **Selection of variables and number of clusters II** - Chair: **Leonardo Grilli**

- ✓ **Maria Brigida Ferraro**, Paolo Giordani, Maurizio Vichi (Università di Roma "La Sapienza") - Fuzzy two-mode clustering: how to determine the optimal number of clusters?
- ✓ **Matteo Farnè** (Università di Bologna), Cinzia Di Nuzzo (Università di Catania) - A simultaneous criterion to select latent rank, number of clusters and proportion of outliers

10:20–11:10 **Advances in item response modelling** - Chair: **Stefania Mignani**

- ✓ **Michela Battauz** (Università di Udine) - Differential item functioning detection across multiple groups
- ✓ **Silvia Bacci** (Università di Firenze), Maria Iannario, Rosa Fabbricatore (Università di Napoli "Federico II") - A unified framework for jointly modeling response times and item position effects in computer-based learning assessments

11:10–11:40 **Coffee break**

11:40–12:55 **Issues in statistical modelling** - Chair: **Silvia Bianconcini**

- ✓ **Chiara Bocci** (Università di Firenze), Paul A. Smith (University of Southampton, UK) - Unit level small area models for skewed survey data
- ✓ **Marco Alfò** (Università di Roma "La Sapienza"), Marta Cipriani (Università di Roma "La Sapienza"), Mirko Signorelli (Leiden University) - Dynamic prediction in mixture cure models, state of the art and future perspectives
- ✓ **Maria Francesca Marino** (Università di Firenze), Dalila Failli (Università di Perugia), Francesca Martella (Università di Roma "La Sapienza") - Extending the mixture of latent trait analyzers in a dynamic perspective

12:55–14:00 **Lunch**

14:00 **Workshop closing**

**Participation is free upon registration. Please note that in-person attendance is limited. To register, send an email to Mariagiulia Matteucci [m.matteucci@unibo.it](mailto:m.matteucci@unibo.it), by January 28, 2026 indicating whether you plan to attend in person or online.**