**Scheda insegnamento**

**Modulo di “Modelli a variabile latente per dati cross-section e longitudinali” / “Latent variable models for cross-section and longitudinal data”**

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|  | **Italiano** | **English** |
| **Docente/Instructor**  | Silvia Pandolfi | Silvia Pandolfi |
| **Titolo/Title**  | Modelli a variabile latente per dati cross-section e longitudinali | Latent variable models for cross-section and longitudinal data |
| **Contenuti/Contents** | * Concetti di base su modelli a variabile latenti
* Stima tramite algoritmo EM
* Generalized Linear Mixed Models
* Modello a classi latenti
* Latent Growth model
* Latent Markov model
* Il pacchetto LMest per R
 | * Basic concepts on latent variable models
* Estimation via EM algorithm
* Generalized Linear Mixed Models
* Latent class model
* Latent Growth model
* Latent Markov model
* Il pacchetto LMest per R
 |
| **Metodologia/Method** | * Analisi teorica
* Discussione di papers
* Discussioni in classe o realizzazione lavori individuali
 | * Theoretical analysis
* Discussion of scientific papers
* In class discussion or individual assignments
 |
| **N. Ore/ N. hours** | **10** | **10** |
| **Mese/Month\*** | **Febbraio** | **Febbraio** |
| **Curriculum** | - QME | - QME |
| **Testi di riferimento/ Suggested readings** | Bartolucci, Francesco, Alessio Farcomeni, and Fulvia Pennoni. *Latent Markov models for longitudinal data*. Chapman and Hall/CRC, 2012.Zucchini, Walter, Iain L. MacDonald, and Roland Langrock. *Hidden Markov models for time series: an introduction using R*. Chapman and Hall/CRC, 2016.Bartolucci, Francesco, Silvia Pandolfi, and Fulvia Pennoni. "LMest: an R package for latent Markov models for longitudinal categorical data." *J Stat Softw* (2017). | Bartolucci, Francesco, Alessio Farcomeni, and Fulvia Pennoni. *Latent Markov models for longitudinal data*. Chapman and Hall/CRC, 2012.Zucchini, Walter, Iain L. MacDonald, and Roland Langrock. *Hidden Markov models for time series: an introduction using R*. Chapman and Hall/CRC, 2016.Bartolucci, Francesco, Silvia Pandolfi, and Fulvia Pennoni. "LMest: an R package for latent Markov models for longitudinal categorical data." *J Stat Softw* (2017). |

\* For details, please, refer to the calendar available at <http://dottorato.ec.unipg.it/it/>