

**COURSE:****An Introduction to Latent Class, Latent Profile and Latent Transition Analyses in R**

**Lecturer:** Ana Borges works as a full-time Professor at ESTG, Polytechnic Institute of Porto. She is an integrated investigator at the CIICESI, Polytechnic Institute of Porto. Ana does research in Statistics and Applied Mathematics in several areas such as Medicine, Business, and Finance.

**Summary:** This course will be about finite mixture models in R with either cross-sectional or longitudinal data. These models can discover the potential existence of hidden groups in the sample. Fit indexes will help in the detection of the number of hidden groups. It also may prove non-heterogeneity in the sample based on certain variables. If it detects hidden groups, the scholar can characterize the groups based on the variables and even perform a multilogistic regression to know how much each variable is associated with the likelihood of membership to each group.

**Dates and time:** November, Friday 24 and December, Friday 1, from 15.30 to 20.00  
**Faculty of Economics and Business Management Sciences-Vigo**  
<https://maps.app.goo.gl/8pQWGi2bSL8zRKB7>

**Tuition:** The course is free for PhD students of the Inter-university PhD Program of Economic Analysis and Business Strategy, for students of the Inter-University Master of Economics, and for ECOBAS members.

**Number of Seats:** there is a limited number of seats, on a first-in, first-served basis.  
**Apply here:** <https://forms.office.com/e/PxZ5SYNW5m>

Those admitted will receive a confirmation by email

**Main content:****1<sup>st</sup> Day: Friday 24/11: LCA & LPA****Module 1: Introduction to Latent Variables and Mixture Models**

- Understanding Latent Variables and Mixture Models
- Applications of Mixture Models

**Module 2: Latent Class Analysis (LCA) Modelling**

- Introduction to LCA
- Model Specification in LCA
- Model Estimation and Interpretation
- Model Evaluation and Selection
- Applying LCA to Real Data using RStudio

*(Coffee break, 15-20 min.)*

**Module 3: Latent Profile Analysis (LPA) Modelling**

- Model Specification in LCA
- Model Estimation and Interpretation
- Model Evaluation and Selection
- Applying LCA to Real Data using RStudio

**2<sup>nd</sup> Day: Friday 1/12: LTA****Module 5: Introduction to Latent Transition Analysis (LTA)**

- Understanding LTA and its objectives
- Model Specification in LTA
- Model Estimation and Interpretation in LTA
- Model Evaluation

*(Coffee break, 15-20 min.)*

- Hands-on LCA exercises using RStudio

**Module 8: Conclusion**

- Recap of Key Concepts in LCA, LPA and LTA
- Suggested Resources for Further Learning

R can be installed for free from here: <https://www.r-project.org/>

The installation of R is mandatory.

Rstudio is an interface between R and the user and enables several features. In particular, the simultaneous edition of syntax-highlighting scripts, along with results in the console and graphs, or saving the workspace with results for later use. The installation is not mandatory but recommended.

It can be downloaded for free from here: <https://posit.co/downloads/>

**Warning: in both cases, be sure to select the appropriate version for your operating system (Linux, Windows, Mac).**

**Further information: contact the Coordinator of the Inter-university PhD Program, prof. Miguel González-Loureiro, [mloureiro@uvigo.gal](mailto:mloureiro@uvigo.gal)**

**Organizers:**

In collaboration with &