

Advanced Statistics I

PhD programme in *Political and Social Sciences*, a.y. 2019/2020

Università degli Studi di Bologna

The course has the objective to provide methodological bases for testing research hypotheses and making prediction in real-world social problems. After refreshing the basics of linear regression model, assessment and prediction techniques are pointed out, then the basics of structural equation modelling are presented. Practical applications of the proposed methods will be addressed using the software R for Statistical Computing.

Teacher

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Timetable

Date	Time	Place
10/02/2020	13:30 – 18:00	Room 2, Labic*
11/02/2020	09:00 – 13:30	Room 2, Labic*
13/02/2020	13:30 – 18:00	Room 2, Labic*
14/02/2020	09:00 – 13:30	Room 2, Labic*

*Via Giacomo della Torre 5, Forlì.

Detailed program

1. The linear regression model for assessment and prediction.
2. Regression models with categorical and count outcomes.
3. Introduction to structural equation modeling.

Teaching methods

Lectures including theory and exercises performed using R for Statistical Computing.

- Download R: <https://cran.r-project.org/bin/windows/base/>
- Download R Studio (R editor): <https://www.rstudio.com/products/rstudio/download/>

Assessment methods

Assignment to be performed using R.

Teaching tools

Lecture slides and R code made available to the students.

Recommended readings

- *An R platform for social scientists*. On-line course by B. Aydin, J. Algina, W. Leite, H. Atilgan, 2017. <https://bookdown.org/burak2358/SARP-EN/>
- *R course*. On-line course by J. D. Rosenblatt, 2019. <http://www.john-ros.com/Rcourse/>
- *An introduction to structural equation modeling*. J. Hox, and T. Bechger, Family Science Review, 11, 354-373, 1999. <http://joophox.net/publist/semfamre.pdf>
- *Structural equation modeling in R for ecology and evolution*. On-line course by J. Lefcheck, 2019 (see Section 2 only). https://jslefche.github.io/sem_book/index.html