

Course: An Introduction to Statistical Analysis in R
Instructor: Eduard Ponarin
Language: English
Venue: Leningrad region, Russia
Time: August 29 – September 2

Thematic Overview. The purpose of this mini-course is to teach some advanced statistical applications without delving into calculus and matrix algebra and also to familiarize the student with the R environment and language. R's disadvantage is certain difficulty for user (relative to SPSS, but not to SAS or Stata). The advantages of R are power (on par with SAS or Stata but with arguably better graphical possibilities), openness and availability, and easy upgrading. The R-project site (<http://www.r-project.org/>) also features a multitude of manuals of R and of various packages for R. The course begins with an introduction to R using examples from the classic statistics and linear regression. Then we examine non-linear regression models and structural equation models. An introduction to simple multi-level models will also be given.

Organization. The lecturer will supply students with R scripts and short handouts during each session

Prerequisites. Participating in this course requires basic knowledge of statistics and familiarity with SPSS.

Session Plan:

Session 1

R environment. Simple statistics in R

Session 2

Linear models in R. Logistic Regression in R

Session 3

Poisson regression in R

Session 4

Structural equation models in R

Session 5

Simple multi-level models in R

Bibliography.

- Fox, John. An R- and S-plus Companion to Applied Regression. Sage Publications, 2002.
- Agresti, Alan and Barbara Finlay. Statistical Methods for the Social Sciences (4th edition). Prentice Hall, 2008.
- Venables, William N. and Brian D. Ripley. Modern Applied Statistics with S. (4th edition). Springer, 2002.
- Gelman, Andrew and Jennifer Hill. Data Analysis Using Regression and Multilevel/Hierarchical Models. Cambridge University Press, 2006.