

Political Science MA - Winter 2011

Multivariate Statistics

Instructor: Tamas Rudas

Teaching assistants: Sebi Popa, Paul Weith

Class meets: 17:20-19:00, Tue and Thu

Office hours: by appointment.

The TA's will held regular weekly office hours. The instructor will be available after the classes and by appointment.

Learning goals

The course develops, on the one hand, a theoretical understanding of why and how multivariate statistical methods are applied in political science and, on the other hand, skills, including the application of statistical packages, to implement such analyses. The course prepares the students to critical application of multivariate statistical methods and emphasizes precise interpretation of the results. Presentation of the statistical methods concentrates on the research question they may answer, and variations depending on the level of measurement of the data will be discussed as a second level of differentiation.

Material to be covered (subject to revision)

Bivariate regression

One-way analysis of variance

Multivariate regression

Two-way analysis of variance

Logistic regression

Log-linear modeling

Factor analysis

Cluster analysis

A good and free source of supporting material for the first part of the topics is at

<http://cran.r-project.org/doc/contrib/Faraway-PRA.pdf>

Software

The class is software neutral. This means that students are welcome to run the statistical analyses discussed on any software of their choice. The instructor will use R for classroom presentations, with the graphical user interface Deducer. Support will be provided to students to implement these free software and making their own data readable by R.

Class procedures

The class relies on active student participation to make sure each student gains a clear theoretical knowledge and hands-on experience. The in-class presentations by the instructor will cover theoretical aspects illustrated by simple applications. After each class, a very brief summary of the material covered will be posted in the internet. Students are required to form groups to help each other in accomplishing class requirements. Each group will work on the analysis of a data set of their choice. While joint work is encouraged, each student will have to have an identifiable contribution to it. In particular, each student will have to choose an analytical problem, give a work-in-progress and a final presentation in class.

Grading and student requirements

To earn credit in this class, each student will have to

- write a midterm test (30%)
- give a work-in-progress presentation of their project (10%)
- give a final presentation of their project (20%)
- submit a research report at the end of the class (40%)

Students who audit the class will have to write the midterm test