

# Course schedule “Applied multivariate statistics”

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| Date     | Topic  | Research context   | Misc.           |
|----------|--|--|-----------------|
| 12/04/17 | Introduction; Revisiting univariate statistics   | Data analysis cycle  |                 |
| 12/11/17 | Multiple regression analysis: Modelling strategies and methods                             | Prediction, estimation and explanation of one response variable by a set of variables                |                 |
| 12/18/17 | Generalized linear models  |  |                 |
| 01/08/18 | Introduction to multivariate analysis; Ordination and Principal Component Analysis (PCA)   | Explore main gradients of variation and reveal patterns of object similarity                         | Theor. Exam I   |
| 01/15/18 | Multivariate multiple Regression (Redundancy Analysis – RDA)                               | Identify gradients of variation in a set of measured variables explained by another set of variables |                 |
|          | Similarity and distance metrics; Non-metric multidimensional scaling (NMDS)                | Explore main gradients of variation and reveal patterns of object similarity                         |                 |
| 01/22/18 | Multivariate comparison of groups (Hotelling $T^2$ , MANOVA, PERMANOVA)                    | Estimate and test for differences in multiple variables or objects across groups                     | Theor. Exam II  |
| 01/29/18 | Unsupervised classification (Cluster analysis)   | Define groups of similar variables or objects  | Pract. Exam     |
| 02/05/18 | Supervised classification (Classification and regression trees), Open issues and exercises | Discriminate objects based on values of measured variables   | Theor. Exam III |
| 02/12/18 | Exam missing parts (PC Raum I 10-12:00)  |  |                 |