

Schedule for the Module ETX3/B2 “Tools for complex data analysis”
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Date	Topic	Exam
24/10/21	Introduction: Data analysis, exploration and statistical modelling	
07/11/22	Linear regression model: Concept, calculation, assumptions and diagnosis; Confidence intervals	
14/11/22	Assessing hypotheses and simulation-based approaches: Critical evaluation of the concept of p -values; t -test; Permutation, bootstrapping and cross-validation; Bias-variance trade-off	Exam 1
21/11/22	Unity of the linear model, interaction terms and multiple linear regression I: ANOVA, ANCOVA, interactions	
28/11/22	Multiple linear regression II: Modelling strategies and methods	Exam 2
5/12/22	Supervised working on R exercises and with tutorials. Participation optional. Alternative: Self-organised preparation and revisiting of teaching material.	
12/12/22	Generalized linear model and log likelihood	Exam 3
23/12/21-02/01/23	Christmas break	
09/01/23	Classification and regression trees	Exam 4
16/01/23	Introduction to multivariate analysis; Ordination and Principal Component Analysis (PCA)	
23/01/23	Supervised working on R exercises and with tutorials. Participation optional. Alternative: Self-organised preparation and revisiting of teaching material.	
30/01/23	Multivariate multiple Regression (Redundancy Analysis – RDA); Similarity and distance metrics; Non-metric multidimensional scaling (NMDS)	Exam 5
06/02/23	Supervised working on R exercises and with tutorials. Participation optional. Alternative: Self-organised preparation and revisiting of teaching material.	Exam 6