Kursaufteilung	Theorie		Aufgaben	
Block 1	Einführung, Multiple Regression	Überanpassung, Generalisierungsfehler, Bias-Varianz Dilemma	Diabetes data: linear regression, model validation (Exercises 1+2)	Calculus, optimization and OLS (Exercise 3)
Block 2	Modellselektion und Subset Regression; Ridge Regression und Regularisierung	Eigenschaften des Schrumpfschätzers, Hauptkomponenten, Bayesianischer Ansatz, Smoothing Splines	Diabetes data and regularization (Exercise 4)	Diabetes data and the caret package (Exercise 5); Closed form solution for Ridge regression (Exercise 6); Bayesian interpretation of Ridge regression (Exercise 7)
Block 3	Lasso & Elasticnet	Erweiterung der Regularisierung auf Klassifikation und Ereigniszeitanalyse	Riboflavin data and elasticnet mixing parameter (Exercise 8)	Ridge and Lasso for orthonormal design (Exercise 9); Heart disease data and logistic regression (Exercise 10); Phoneme recognition (Exercise 11); Classification and the caret package (Exercise 12); Survival analysis and the Lymphoma data (Exercise 13)
Block 4	Decision Trees, Random Forest & AdaBoost	High-dimensionales Feature Assessment: Multiples testen, Bonferroni- und FDR-Korrektur	Decision trees, Random Forest and AdaBoost (Exercise 14)	Email spam and data mining (Exercise 15); Multiple testing and gene expression (Exercise 16)