

CB-EC1: Molecular data science with R

Person in charge and Representative	DeLuca and Chouvarine
Contact person	David DeLuca deluca.david@mh-hannover.de
Semester	2,3 or 4
Topic cluster	Computational Biology
Duration/Credit	15 Hours
Time	The exact date incl. time will be announced separately
Place	Online. Dial-in data are sent separately
Prerequisite for the lecture/course	Students must fulfill all three of the following requirements <ol style="list-style-type: none">1) Participation in a prior introductory programming course.2) Familiarity with basic R syntax.3) CB-EL1: Introduction to Molecular Data Science, or possess equivalent background in basic statistics (p-values, linear modeling etc)
Aim of the lecture/course	A three day seminar working through key concepts in statistics and machine learning for the analysis of biomolecular or biomedical data and their practical implementation in R. Some introduction and theory is be provided for each methodology, but the emphasis is on coding exercises in R. Some R syntax basics will be reviewed, but at least some prior experience with R is required. Topics include transcriptomics, batch correction, linear modeling, PCA, clustering, expectation maximization, classification, and machine learning.