Applied Statistical Methods In Animal Science

Peter von Rohr

2024-02-19

Administration

- Course: 2 hours of lecture (2 V)
- Plan: 2 V $\rightarrow$ 1 U + 1 V (i.e., 1 hour of lecture intersperced with time to do exercises)
- Exercises: Work on problems in R
- Material: course notes, slides, solution to exercises
- Exam: written, date: 22.05.2023, 08:15-10:00

Objectives

The students

- are familiar with the properties of **fixed linear effects models**
- are able to analyse simple data sets
- know why least squares cannot be used for genomic selection.
- know the statistical methods used in genomic selection, such as
  - BLUP-based approaches,
  - Bayesian procedures and
  - LASSO.
- are able to solve simple exercise problems using the statistical framework R.

Lecture Program

Week	Date	Topic
1	19.02	Introduction
2	26.02	Linear Regression Models
3	04.03	Linear Fixed Effect Models
4	11.03	Model Selection
5	18.03	Pedigree BLUP
6	25.03	Variance Components
7	01.04	**Easter Monday** (Ostermontag)
8	08.04	GBLUP - Marker-Effects Models
9	15.04	GBLUP - Breeding Value Models
10	22.04	Lasso
11	29.04	SVM
12	06.05	Bayesian Approaches in Linear Mixed Effects Models
13	13.05	Test Exam
14	20.05	**Pentcote Monday** (Pfingstmontag)
15	27.05	Exam