TUM and GPZ Spring School 2025
"Selection and Breeding"

March 31 – April 9, 2025
Herrsching am Ammersee, Germany

Lecturers: Bruce Walsh, University of Arizona and Gustavo de los Campos, Michigan State University

Preliminary program:

Session 1 – Quantitative Genetics
Genetic variance
Resemblance between relatives
Inbreeding
Heterosis
Marker-based relatedness estimation

Session 2 – Selection
Breeder's equation
Bulmer effects
Matrices
Multivariate selection
Index selection
Linear models
Mapping single variants associated with phenotypes

Session 3 – Genomic Prediction
Conceptual model and factors affecting prediction accuracy
Whole genome regression, prediction using penalized regression
Bayesian models
GBLUP and Kernel regression models
XGBoost

Session 4 – Lessons learned
Results from parallel genomic selection experiments
Wrap-up
Course review