

PROJECT DESCRIPTION – Master’s Thesis at the Center for Quantitative genetics and Genomic (<https://qgg.au.dk/>)

Project title	Genome-wide association studies for economic traits in Icelandic Cattle
Main subject area	Livestock genomics
Supervisor and Position E-mail	Egill Gautason, PhD student egill@au.dk
Co-Supervisor(s), Position(s) E-mail	Goutam Sahana, Senior Researcher goutam.sahana@qgg.au.dk
Project start	To be decided in agreement with the supervisor.
Physical location of project and students work	Center for Quantitative genetics and Genomics, AU Foulum, DK-8830 Tjele
<b><i>Project description</i></b>	
Project goal and background	Using phenotypic and SNP genotype data, genes and regions affecting traits in Icelandic Cattle can be mapped. Many traits can be studied in the project: sterility, coat colour, milk yield traits, mastitis and body conformation traits. A genome-wide association study (GWAS) for these traits will be conducted with the aim of mapping regions and genes affecting these traits. Recessive lethal alleles segregating in the population can be detected by detection of deficiency of haplotype homozygosity and other methods.
Specific research topic(s)	1. Mapping of QTL for traits of interest in Icelandic Cattle. 2. Identification of genes underlying the identified QTLs. 3. Detection of recessive lethal alleles.
Methods	Imputation, linear mixed models, GWAS, detection of haplotype homozygosity deficiency, gene and sequence variant databases.
Additional information	30-45-60 ECTS thesis as appropriate. The MSc student is invited to co-author a scientific publication.