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

Project title	Distinguishing between pleiotrophy and genetic correlation
Main subject area	Human genetics
Supervisor and Position E-mail	Professor Doug Speed doug@qgg.au.dk
Co-Supervisor(s), Position(s) E-mail	Senior Researcher Goutam Sahana goutam.sahana@qgg.au.dk
Project start	To be decided in agreement with the supervisor.
Physical location of project and students work	Aarhus University, 8000C, Aarhus
Project description	
Project goal and background	There is substantial overlap between many human complex traits. For example, risk variants that make an individual more likely to develop schizophrenia tend to also affect risk of bipolar. This project will try and better understand the reason behind these overlaps.
Specific research topic(s)	There are two main causes of genetic overlap.: pleiotrophy and genetic correlation. Pleiotrophy refers to the fact that particular types of genetic variants will in general be more important than others (e.g., coding regions tend to be more important than inter-genic regions). Genetic correlation is more specific, and refers to the fact that some individual variants can be causal loci for multiple traits. This project will attempt to decide how much genetic overlap is due to pleiotrophy, and how much due to genetic correlation
Methods	Learn how to analyze genetic data. Methods include quality control, single-SNP analysis and heritability analyses.
Additional information	30-45-60 ECTS thesis as appropriate. The MSc student is invited to co-author a scientific publication.