- **Nordiske fjellku raser. Genetisk diversitet og kulturhistorie**
  Formålet med prosjektet er å kartlegge den felles kulturhistorien til kurasene i nordområdene; Sidet trønder og nordlandsfe, Svensk Fjellku og Nordfinsk ku. Kultur og husdyr har alltid hatt en sterk tilknytting til hverandre. Kyrne i nordområdene har utviklet seg for å tåle det harde klimaet i nordområdene. De var også veldig viktige for folks overlevelse der klimaet satte begrensinger for jordbruket. I nyere tid har de blitt utkonkurrert av mer høytytende dyr. Gjennom å kartlegge historien, analysere stamtavlene, samt genomiske analyser med både arkeologiske DNA prøver og DNA prøver fra nålevende/moderne dyr skal prosjektet kartlegge sammenhengen mellom kultur og genetiske ressurser. Oppgaven er assosiert med et Nordisk prosjekt hos NordGen.

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- **Pedigree analysis of Norwegian native cattle breeds**
  The Norwegian Genetic Resource Center maintains a database with pedigree information on the six native Norwegian cattle breeds. Based on these data a master project with two objectives are proposed. First to document genetic diversity and in particular rates of inbreeding in the six breeds based on pedigree analysis. Secondly to evaluate the potential of optimal contribution selection to improve management of the breeds.

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- **Genetic diversity in poultry assessed using Runs of Homozygoity**
  Lines of poultry from the Norwegian Poultry Genebank has been genotypes with a 500K SNP chip. A commercial line has also been genotyped. Inbreeding has previously been documented based on pedigree and identity by state. The objective of this master project would be to evaluate diversity and inbreeding in the poultry lines genotyped, using Runs of Homozygosity (ROH) as a measure and compare this to previously obtained results.

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- **Sustainable selection of breeding rams based on simultaneous optimization of high genomic breeding values and low inbreeding**

  Genetic progress for traits in the breeding goal at a limited increase in inbreeding is a pre-requisite for a sustainable breeding program. Previously, the simultaneous optimization has been based on pedigree inbreeding and breeding values of the total merit index (TMI). Lately, genomic selection has been introduced into the breeding program of Norwegian White sheep. The aim of this project is to apply optimum contribution selection (OCS) utilizing also genomic information. The OCS theory will be applied using the EVA-software.

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