

**Responsible:** Eivind Valen

**Curriculum Reading material:**

1. "Bioinformatics and Functional Genomics" [textbook], PDF will be available
2. Slides
3. Literature articles
4. Videos

**Thematic areas that will be covered involve:**

- Introduction to eukaryotic genomes
- Gene prediction considering coding and non-coding sequence regions,
- Gene Ontology as a controlled vocabulary of terms related to different aspects of genes and gene products,
- Gene regulation and regulatory elements such as promoters, enhancers, silencers, insulators and locus control regions,
- Sequencing technologies and how they generate data,
- De novo sequence assembly, i.e., assembling short nucleotide sequences into longer ones without the use of a reference,
- Mapping of reads to genome, how are reads aligned to a reference human genome?
- Metagenomics, the study of genetic material recovered directly from environmental samples
- High-throughput Sequencing data analysis