Bioinformatics for biologists – 2020

Taught by the CRG Bioinformatics core facility

In all modules we will use public online tools and databases.
No LINUX/programming skills required.

8 Modules x 1.5h from 24/01/2020 to 13/03/2020

      1. **DNA, gene, and protein sequences**: protein and gene databases. Gene names and databases ID conversion. (24/01/2020)

      2. **Sequence comparison**: concepts and approaches for pairwise sequence alignment; multiple sequence alignment. (31/01/2020)

      3. **Genome sequences and annotations**: how genomes are assembled and annotated; databases and Genome Browsers. (7/02/2020)

      4. **Gene and protein function**: introduction of concepts of families, homology, and ontologies; protein domain/motif databases; subcellular localization, post-translational modifications, function prediction: databases and online tools. (14/02/2020)

      5. **Protein-DNA interactions**: how they are measured; DNA motifs and PWM, databases, prediction and visualisation; ChIP-seq: databases and visualization in Genome Browsers, peak annotation (GO terms enrichment), motif discovery. (21/02/2020)

      6. & 7. **Gene expression**: how it is measured and analyzed ; databases and public repositories for expression data. (28/02/2020 & 6/03/2020)

      8. **Functional annotation of gene sets**: pathways databases, ontologies, protein-DNA motifs in the promoter regions, gene set enrichment analysis. (13/03/2020)