

Content for Bioinformatics Course Work

CODE: IICB-BIO

- ..Introduction to biological databases
- ..Sequence alignment techniques: pair-wise & multiple sequence alignment
- ..Phylogenetic analysis for biological sequences
- ..Introduction to *In-silico* molecular modeling: Energy optimization (different methods), Homology modeling -
- ..*In-silico* Drug designing: Structure based & ligand based drug designing
- ..Basics of molecular dynamics simulation: molecular dynamics to compute properties of protein structures and their flexibility
- ..Computational genomics: gene prediction, pattern searching, profile/motif based searching -
- ..Using genome browsers
- ..Basic statistics using R -

Genomics

- ..An introduction to Sequencing technology and output data types
- ..Basics of library constructions
- ..Quality Control of sequenced data and data cleaning for genomic and metagenomic DNA.
- ..Differential expression analysis using RNAseq technology.

Metagenomics

- ..Metagenomic 16S rRNA data analysis for understanding biological diversity.
- ..Introduction to the Galaxy suite of tools