

Sr. No	Videos	Description	Duration	Category	Main Category
Segment 3: Sequence and Biological Data Analysis					
1	Clustal Omega	<ul style="list-style-type: none"> • Introduction to Clustal Omega, a multiple sequence alignment tool. • Procedure to align multiple sequence using Clustal Omega. • Interpretation of the output final alignment. 	19:18	Multiple Sequence Alignment	Sequence Alignment & Analysis
2	MUSCLE	<ul style="list-style-type: none"> • Introduction to MUSCLE tool. • Procedure to align multiple sequences and interpretation of final output alignments. 	21:07	Multiple Sequence Alignment	Sequence Alignment & Analysis
3	TCoffee	<ul style="list-style-type: none"> • Introduction to T-Coffee, a multiple sequence alignment tool and its characteristics. • Analyzing multiple sequence alignment (MSA) on T-Coffee. • Interpretation of alignment results and generating phylogenetic tree on MEGA. 	8:37	Multiple Sequence Alignment	Sequence Alignment & Analysis
4	Mafft	<ul style="list-style-type: none"> • Introduction to Mafft, multiple sequence alignment program. • Analyzing fastest multiple sequence alignment (MSA) on Mafft. • Provides various commands to install, and utilize the MAFFT tool on Linux OS 	8:22	Multiple Sequence Alignment	Sequence Alignment & Analysis
5	Jalview	<ul style="list-style-type: none"> • Introduction to Jalview tool. • Analysis and visualization of MSA through Jalview. • Generating phylogenetic tree an PCA using Jalview. 	13:42	Multiple Sequence Alignment	Sequence Alignment & Analysis
6	NEEDLE	<ul style="list-style-type: none"> • Introduction to EMBOSS Needle, a pairwise alignment tool. • Procedure to perform and analyse global alignment and track the optimum sequence. 	20:02	Pairwise Sequence Alignment	Sequence Alignment & Analysis
7	WATER	<ul style="list-style-type: none"> • Introduction to EMBOSS Needle, a pairwise alignment tool. • Procedure to perform and analyse local alignment and how Needleman-Wunsch algorithm works. 	9:10	Pairwise Sequence Alignment	Sequence Alignment & Analysis
8	SignalP	<ul style="list-style-type: none"> • Introduction of SignalP tool. • Predicton of signal peptide from protein sequence. 	7:57	Protein Analysis	Protein Databases & Analysis

9	TargetP	<ul style="list-style-type: none"> • Introduction to TargetP server. • Prediction and detailed analysis of Mitochondrial transfer peptide through TargetP. 	9:21	Protein Analysis	Protein Databases & Analysis
10	Aln2Plot	<ul style="list-style-type: none"> • Introduction to Aln2Plot tool. • Generates graphical plots of hydrophobicity and side chain volumes for two or more query proteins using the Aln2Plot tool. 	2:30	Protein Analysis	Protein Databases & Analysis
11	DeepCoil	<ul style="list-style-type: none"> • Introduction to a web based tool, DeepCoil. • Prediction of the coiled coil domain regions within a query protein sequence. 	3:22	Protein Analysis	Protein Databases & Analysis
12	HHrepID	<ul style="list-style-type: none"> • Introduction to HHrepID, a web-based tool for the prediction of secondary structures of the protein. • Find repetitive regions within a query protein sequence using the HHrepID tool. 	5:15	Protein Analysis	Protein Databases & Analysis
13	MARCOIL	<ul style="list-style-type: none"> • Introduction to Marcoil, an HMM for the recognition of proteins with a CCD. • Analysis and prediction of potential coiled-coil domains in protein sequences. 	4:05	Protein Analysis	Protein Databases & Analysis
14	REPPER	<ul style="list-style-type: none"> • Introduction to REPPER to analyses regions with short gapless REPeats in protein sequences. • Analysis of output that is complemented by coiled coil prediction (COILS) and optionally by secondary structure prediction (PSIPRED). 	2:25	Protein Analysis	Protein Databases & Analysis
15	HMMER	<ul style="list-style-type: none"> • Introduction of HMMER; hidden Markov model based database for protein profiling. • Retrieve the sequence homologs of the query protein using the HMM profile method and it's elaborated analysis. 	13:16	Motif & Domain Analysis	Protein Databases & Analysis
16	SMART: Finding Domains in Proteins	<ul style="list-style-type: none"> • Introduction of SMART; Simple Modular Architecture Research Tool for the identification and analysis of protein domains. • Detection of protein domains from the multiple sequence alignments of proteins. 	6:44	Motif & Domain Analysis	Protein Databases & Analysis
17	ScanProsite	<ul style="list-style-type: none"> • Establishment of ScanProsite, an improved version of the web-based tool provided by PROSITE. • Scan proteins for matches against the PROSITE collection of motifs as well as against your own patterns. 	7:36	Motif & Domain Analysis	Protein Databases & Analysis

18	MEGA	<ul style="list-style-type: none"> • Introduction to Phylogenetics and MEGA software for phylogenetic analysis. • Multiple sequence analysis through MEGA software. • Generating phylogenetic trees with different methods through MEGA. 	21:20	Phylogenetic Analysis & tools	Phylogenetic Analysis
19	FigTree	<ul style="list-style-type: none"> • Introduction to FigTree and its purposes. • Generating a publication quality figure out of phylogenetic tree data. • Defines parameters to make tree visually interactive and well anotated. 	21:26	Phylogenetic Analysis & tools	Phylogenetic Analysis
20	iTOL	<ul style="list-style-type: none"> • Introduction to iTOL, a phylogenetic tree viewer tool. • Creating a high resolution picture out of phylogenetic tree data using iTOL • Editing phylogenetic tree and making it visually interactive. 	13:42	Phylogenetic Analysis & tools	Phylogenetic Analysis