

Sr. No	Lecture Title	Description	Category	Duration
<b>Segment 1: Bioinformatics Databases for Protein Analysis</b>				
1	Introduction to UniProt	<ul style="list-style-type: none"> <li>• Introduction to UniProt, its purpose and uses.</li> <li>• Sub-databases hosted by UniProt database.</li> </ul>	UniProt	9:56
2	UniProtKB & Protein Analysis	<ul style="list-style-type: none"> <li>• Introduction to UniProtKB database.</li> <li>• Retrieval and analysis of protein sequences and genomic level information of proteins.</li> </ul>	UniProt	39:29:00
3	UniProteome & Retrieval of an Entire Proteome	<ul style="list-style-type: none"> <li>• Introduction to UniProteome</li> <li>• Retrieval of an entire proteome</li> <li>• Proteomics data and data annotation</li> </ul>	UniProt	13:05
4	UniRef & Retrieve Protein Clusters	<ul style="list-style-type: none"> <li>• Introduction to UniRef</li> <li>• Describes clusters sets from UniParc and UniProtKB</li> <li>• Sequence space at three resolution (UniRef100, UniRef90, UniRef50).</li> </ul>	UniProt	11:35
5	UniParc & Find the Non-Redundant Entries	<ul style="list-style-type: none"> <li>• Introduction to UniParc</li> <li>• Retrieval of non-redundant protein sequences.</li> <li>• Non-redundant protein sequence data and data annotation.</li> </ul>	UniProt	4:58
6	Peptide Search: Searching for a Particular Peptide on UniProt	<ul style="list-style-type: none"> <li>• Introduction to Peptide Search tool hosted by UniProt database.</li> <li>• Search methods of retrieving a particular amino acid sequence.</li> <li>• Retrieving regions of particular protein against the entire database of UniProt.</li> </ul>	UniProt	3:15
7	Introduction to Protein Data Bank (PDB)	<ul style="list-style-type: none"> <li>• Introduction to Protein Data Bank (PDB).</li> <li>• Describes the repository of experimentally structured biomolecules.</li> </ul>	PDB	6:44
8	Accurately Searching for a Protein Structure on PDB & Protein Analysis	<ul style="list-style-type: none"> <li>• Describes different search methods to retrieve query protein molecule on PDB.</li> <li>• Defines parameters and filters to specify the searches.</li> <li>• Accurately searching a protein structure on Protein Data Bank (PDB).</li> </ul>	PDB	13:55
9	Browsing PDB According to Annotation	<ul style="list-style-type: none"> <li>• Retrieval of a protein structure using Biological annotation on PDB.</li> <li>• Describes categories of annotation and their description.</li> </ul>	PDB	6:52
10	Digging Out Categorized & Specific Protein Structures from PDB Archives	<ul style="list-style-type: none"> <li>• Retrieval of detailed information for a particular protein structure through Protein Data Bank (PDB).</li> <li>• Accessing the PDB Archive using multiple sorts of parameters.</li> </ul>	PDB	6:23
11	3D Structure Visualization on PDB	<ul style="list-style-type: none"> <li>• Visualization and analysis of protein structure using visualization tool hosted by PDB.</li> <li>• Defines parameters to interactively visualize the protein.</li> </ul>	PDB	10:49

12	Biological Annotation and Protein Features View & Analysis	<ul style="list-style-type: none"> <li>• Visualization of features of the query protein through Protein Data Bank.</li> <li>• Procedure to look into the visualization and analysis of the protein features.</li> </ul>	PDB	8:18
13	Protein Symmetry: Understanding the Protein Validation	<ul style="list-style-type: none"> <li>• Description of protein symmetry page of Protein Data Bank (PDB).</li> <li>• Visualization and analysis of protein of interest.</li> </ul>	PDB	2:34
14	NCBI BLAST Database Searching	<ul style="list-style-type: none"> <li>• Describes NCBI BLAST searching to find regions of similarity between biological sequences.</li> <li>• Calculates statistical significance.</li> <li>• Compares nucleotide and protein sequences to sequence databases.</li> </ul>	NCBI	25:36:00
15	UniProt BLAST & Protein Database Searching	<ul style="list-style-type: none"> <li>• Searching a query against the entire UniProt database using UniProt BLAST</li> <li>• Detailed analysis of local similarity, functional and evolutionary relationship between different sequences</li> </ul>	UniProt	12:32
16	Introduction to InterPro	<ul style="list-style-type: none"> <li>• Protein family classification and analysis using InterPro database.</li> <li>• Proteome analysis of a particular protein.</li> <li>• Protein families domains analysis.</li> </ul>	Protein Families Database	4:10
17	InterPro - Protein Family Classification and Analysis	<ul style="list-style-type: none"> <li>• Introduction to UniProt BLAST searching tool.</li> <li>• Finds functional and evolutionary relationship between sequences.</li> <li>• Search query sequences against the entire UniProt database.</li> </ul>	Protein Families Database	14:35
18	Protein & Protein Domain Analysis	<ul style="list-style-type: none"> <li>• Protein and protein domain analysis through InterPro database.</li> <li>• Protein families domain analysis.</li> </ul>	Protein Families Database	9:29
19	Pfam: Understanding Protein Families and their Members	<ul style="list-style-type: none"> <li>• Detailed introduction of a database of curated protein families, Pfam.</li> <li>• Analyze a protein and retrieve significant information related to that protein.</li> </ul>	Protein Families Database	15:55
20	PROSITE: Understanding and Analyzing Protein Motif and Domain Profiles	<ul style="list-style-type: none"> <li>• Introduction to protein domain, families and functional sites database, PROSITE.</li> <li>• Analyze various informative sections provided by the documentation page.</li> </ul>	Protein Families Database	13:46
21	Introduction to Molecular Modeling Database (MMDB)	<ul style="list-style-type: none"> <li>• Introduction to Molecular Modeling Database (MMDB).</li> <li>• Retrieval and analysis of a particular dataset from MMDB.</li> <li>• Lists the tools provided by MMDB.</li> </ul>	NCBI	8:06
22	STRING: Protein-Protein Network Database and Analyzing PPI Between Proteins	<ul style="list-style-type: none"> <li>• Introduction to protein-protein interaction database, STRING.</li> <li>• Understanding of protein interaction network through analyzing the query protein result and visualization.</li> </ul>	PPI Database	13:16