

Days	Name	Durations	Category	Main Category
1	Introduction to National Center of Biotechnology Information (NCBI)	18:01	NCBI	Bioinformatics Databases
1	Sequence Analysis	17:59	NCBI	Bioinformatics Databases
2	Sequence Retrieval from NCBI	16:16	NCBI	Bioinformatics Databases
2	PubMed Central & ENTREZ	11:06	NCBI	Bioinformatics Databases
3	FASTA (Sequence Format)	6:13	Sequence Format	Bioinformatics File Formats
3	GenBank: Nucleotide Database on NCBI	6:50	NCBI	Bioinformatics Databases
4	GenBank (Sequence Annotation Format)	7:08	Sequence Format	Bioinformatics File Formats
4	FASTA vs. GenBank	18:26	NCBI	Bioinformatics Databases
5	Gene Database: A Comprehensive Gene Database	30:21:00	NCBI	Bioinformatics Databases
5	NCBI Genomes & NCBI Assembly: Retrieval of Genomes	36:14:00	NCBI	Bioinformatics Databases
6	FASTQ Format	18:01	Sequence Format	Bioinformatics File Formats
6	Gene File Format/Gene Transfer Format	11:06	Sequence Format	Bioinformatics File Formats

7	BED (Gene Structure Format)	4:26	Sequence Format	Bioinformatics File Formats
7	SAM	9:06	Sequence Format	Bioinformatics File Formats
8	BAM	9:06	Sequence Format	Bioinformatics File Formats
8	RefSeq Database: Retrieval of Single Reference Sequences	11:15	NCBI	Bioinformatics Databases
9	BLAST Database Searching	25:36:00	NCBI	Bioinformatics Databases
9	Introduction to Molecular Modeling Database (MMDB)	8:06	NCBI	Bioinformatics Databases
10	Database of Short Genetic Variations (dbSNP)	12:16	NCBI	Bioinformatics Databases
10	HomoloGene: Discovery of Gene and Protein Families	6:10	NCBI	Bioinformatics Databases
11	Taxonomy	9:56	NCBI	Bioinformatics Databases
11	Introduction to UCSC Genome Browser & SARS-CoV-2 Viral Genome	13:40	UCSC	Bioinformatics Databases
12	Retrieve an Entire Genome & Retrieval of SARS-CoV-2 Viral Genome	9:40	UCSC	Bioinformatics Databases
12	Retrieval of Genomic Data & Annotation of SARS-CoV-2 Viral Genome	5:29	UCSC	Bioinformatics Databases
13	Table Browser & SARS-CoV-2 Viral Genome	12:15	UCSC	Bioinformatics Databases

13	Visualization of Genomic Data on the Genome Browser & SARS-CoV-2 Genome	10:51	UCSC	Bioinformatics Databases
14	Introduction to UniProt	9:56	UniProt	Protein Databases & Analysis
14	UniProtKB & Protein Analysis	39:29:00	UniProt	Protein Databases & Analysis
15	UniProteome & Retrieval of an Entire Proteome	13:05	UniProt	Protein Databases & Analysis
15	UniProt BLAST - Database Searching	12:32	UniProt	Bioinformatics Databases
16	ID Mapping & Making Analysis Easier	7:17	UniProt	Protein Databases & Analysis
16	UniProt Peptide Search - Find Regions Within UniProt Database	3:15	UniProt	Bioinformatics Databases
17	Introduction to Protein Data Bank (PDB)	6:44	PDB	Protein Databases & Analysis
17	Accurately Searching for a Protein Structure on PDB & Protein Analysis	13:55	PDB	Protein Databases & Analysis
18	Biological Annotation and Protein Features View & Analysis	8:18	PDB	Protein Databases & Analysis
18	Browsing PDB According to Annotation	6:52	PDB	Protein Databases & Analysis
19	Digging Out Categorized & Specific Protein Structures from PDB Archives	6:23	PDB	Protein Databases & Analysis
19	Alignment Between Two PDB Sequences & Structures	6:07	PDB	Protein Databases & Analysis

20	3D Structure Visualization on PDB	10:49	PDB	Protein Databases & Analysis
20	Mapping Genomic Position to Protein Sequence and 3D Structure	4:34	PDB	Protein Databases & Analysis
21	Genomic Discovery of Protein Structure Through Gene	4:07	PDB	Protein Databases & Analysis
21	PDB - Protein Symmetry	2:34	PDB	Protein Databases & Analysis
22	Introduction to ENSEMBL	7:49	ENSEMBL	Bioinformatics Databases
22	Retrieval of a Gene-Protein-Chromosomal Region	18:01	ENSEMBL	Bioinformatics Databases
23	Genome Assembly Retrieval and Analysis	10:23	ENSEMBL	Bioinformatics Databases
23	Gene Analysis & Annotation	34:40:00	ENSEMBL	Bioinformatics Databases
24	Variation Analysis	24:36:00	ENSEMBL	Bioinformatics Databases
24	ENSEMBL BLAST/BLAT	15:08	ENSEMBL	Bioinformatics Databases
25	Regulation - Understand the Influence of Regulatory Elements on Genes	4:18	ENSEMBL	Bioinformatics Databases
25	Comparative Genomics Analysis	5:34	ENSEMBL	Bioinformatics Databases
26	Introduction to InterPro	4:10	InterPro	Protein Databases & Analysis

26	InterPro - Protein Family Classification and Analysis	14:35	InterPro	Protein Databases & Analysis
27	InterPro - Protein & Protein Domain Analysis	9:29	InterPro	Protein Databases & Analysis
27	Introducton to Phytozome	9:38	Phytozome	Bioinformatics Databases
28	Interpret Plant Genome Records	9:06	Phytozome	Bioinformatics Databases
28	Download an Entire Plant Genome & Proteome	26:41:00	Phytozome	Bioinformatics Databases
29	Keyword or BLAST Search in a Plant Genome	15:58	Phytozome	Bioinformatics Databases
29	Visualize a Plant Genome Using JBrowse	17:38	Phytozome	Bioinformatics Databases
30	UniProt Align - Pairwise & Multiple Sequence Alignment and Annotation	3:47	UniProt	Bioinformatics Databases
30	EMBOSS NEEDLE: Global Alignment of Sequences	20:02	Pairwise Sequence Alignment & Analysis	Sequence Alignment & Analysis
31	EMBOSS Water	9:10	Pairwise Sequence Alignment & Analysis	Sequence Alignment & Analysis
31	Clustal Omega: Most Reliable Multiple Sequence Alignment Tool	19:18	Multiple Sequence Alignment & Analysis	Sequence Alignment & Analysis
32	Clustal Omega Alignment Format	5:07	Alignment Format	Bioinformatics File Formats
32	Jalview	13:42	Multiple Sequence Alignment & Analysis	Sequence Alignment & Analysis

33	T-Coffee: Iterative Multiple Sequence Alignment Tool	8:37	Multiple Sequence Alignment & Analysis	Sequence Alignment & Analysis
33	MUSCLE: Accurate Multiple Sequence Alignment Tool	21:07	Multiple Sequence Alignment & Analysis	Sequence Alignment & Analysis
34	MEGA - Multiple Sequence Alignment	4:23	Multiple Sequence Alignment & Analysis	Sequence Alignment & Analysis
34	MEGA (Alignment Format)	5:32	Alignment Format	Bioinformatics File Formats
35	MAFFT - Fastest Multiple Sequence Alignment Tool	8:22	Multiple Sequence Alignment & Analysis	Sequence Alignment & Analysis
35	PHYLIP - Multiple Sequence Alignment Format	4:34	Alignment Format	Bioinformatics File Formats
36	Stockholm Alignment Format	3:10	Alignment Format	Bioinformatics File Formats
36	Aln2Plot	2:30	Sequence Analysis	Sequence Alignment & Analysis
37	MEGA	21:20	Phylogenetic Analysis	Phylogenetic Analysis
37	iTOL: Creating Publishable Phylogenetic Figures	13:42	Phylogenetic Tree Visualization & Analysis	Phylogenetic Analysis
38	FigTree	21:26	Phylogenetic Tree Visualization & Analysis	Phylogenetic Analysis
38	Quick2D	4:33	Secondary Structure Prediction	Secondary Structure Prediction
39	Ali2D	4:09	Secondary Structure Prediction	Secondary Structure Prediction

39	Jpred: Prediction Secondary Structure of the Proteins	4:54	Secondary Structure Prediction	Secondary Structure Prediction
40	HHrepID	5:15	Secondary Structure Prediction	Secondary Structure Prediction
40	DeepCoil	3:22	Secondary Structure Prediction	Secondary Structure Prediction
41	REPPER - Predict Gapless Repeats in Proteins	2:25	Secondary Structure Prediction	Secondary Structure Prediction
41	HMMER - Hidden Markov Model Based Protein Profiles Database	13:16	Protein Analysis	Protein Databases & Analysis
42	SignalP: Prediction of Signal Peptides	7:57	Protein Analysis	Protein Databases & Analysis
42	TargetP: Prediction of Protein Localization	9:21	Protein Analysis	Protein Databases & Analysis
43	Pfam - Understand the Relation of a Protein to its Family and Clan	15:55	Protein Family Database	Protein Databases & Analysis
43	PROSITE - A Database of Protein Domian, Families and Functional Sites	13:46	Protein Family Database	Protein Databases & Analysis
44	ScanProsite - Scanning Protein for Important Protein Sites Against PROSITE Database	7:36	Motif & Domain Analysis	Protein Databases & Analysis
44	Marcoil - Predict Coiled Coil Domains in Proteins	4:05	Motif & Domain Analysis	Protein Databases & Analysis
45	SMART	6:44	Motif & Domain Analysis	Protein Databases & Analysis
45	PDB - Ligands	5:23	PDB	Protein Databases & Analysis

46	MODELLER: Most Commonly Used Homology Modelling	36:13:00	3D Structure Prediction	3D Structure Prediction
46	SwissModel: Homology Modeling Through Web-server	12:52	3D Structure Prediction	3D Structure Prediction
47	HHPred	14:09	3D Structure Prediction	3D Structure Prediction
47	M4T	9:26	3D Structure Prediction	3D Structure Prediction
48	IntFold	8:41	3D Structure Prediction	3D Structure Prediction
48	ROBETTA: ab initio Protein Structure Prediction	14:39	3D Structure Prediction	3D Structure Prediction
49	Homology Modeling Using MOE	12:34	3D Structure Prediction	3D Structure Prediction
49	UCSF CHIMERA	25:23:00	3D Structure Visualization	3D Structure Visualization
50	PyMol	40:48:00	3D Structure Visualization	3D Structure Visualization
50	WhatCheck	8:40	3D Structure Evaluation	3D Structure Evaluation
51	ProCheck	12:40	3D Structure Evaluation	3D Structure Evaluation
51	ERRAT	6:44	3D Structure Evaluation	3D Structure Evaluation
52	Verify3D	8:31	3D Structure Evaluation	3D Structure Evaluation



52	RAMPAGE	3:29	3D Structure Evaluation	3D Structure Evaluation
53	SAVES	5:31	3D Structure Evaluation	3D Structure Evaluation
53	PROSA	10:05	3D Structure Evaluation	3D Structure Evaluation
54	MOE: Protein Ligand Docking	9:23	Molecular Docking	Molecular Docking
54	MOE: Protein Protein Docking	11:38	Molecular Docking	Molecular Docking
55	SwissDock Protein Ligand Docking	19:16	Molecular Docking	Molecular Docking
55	Autodock Vina Protein Ligand Docking	Not Yet Available	Molecular Docking	Molecular Docking
56	MOE: Structure Based Drug Desinging	16:19	Molecular Docking	Molecular Docking
56	MOE: Docking Library of Compounds	19:48	Molecular Docking	Molecular Docking
57	ClusPro Protein Protein Docking	21:44	Molecular Docking	Molecular Docking
57	Patchdock Protein Protein Docking	17:39	Molecular Docking	Molecular Docking
58	PEPFOLD 3 Peptide Structure Prediction	13:14	Molecular Docking	Molecular Docking
58	Zdock Protein Protein/Ligand docking	19:35	Molecular Docking	Molecular Docking

59	MDockPEP Protein Peptide Docking	10:06	Molecular Docking	Molecular Docking
59	Discovery Studio+	12:03	Molecular Docking	Molecular Docking
60	PDBsum Docking Complex Evaluation	18:49	Docking Complex Evaluation	Docking Complex Evaluation
60	Pdbepisa Docking Complex Evaluation	23:27	Docking Complex Evaluation	Docking Complex Evaluation
61	SwissADME	15:31	Docking Complex Evaluation	Docking Complex Evaluation
61	GeneMark: Gene Prediction from Eukaryotic Genomes	16:51	Gene Prediction	Gene Prediction
62	Prodigal: Gene Prediction from Microbial Genomes	25:46:00	Gene Prediction	Gene Prediction
62	GenScan - Prediction of Genes from Green Monkey and Finding a Novel Gene	10:40	Gene Prediction	Gene Prediction
63	AUGUSTUS - Prediction of Novel Genes in Star Fish or Any Genome	17:27	Gene Prediction	Gene Prediction
63	UniRef And Retrieve Protein Clusters	11:35	UniProt	Bioinformatics Databases
64	UniParc And Find the Non-Redundant Entries	4:38	UniProt	Bioinformatics Databases
64	Genome Reference Consortium (GRC)	7:48	NCBI	Bioinformatics Databases
65	BioProject	6:39	NCBI	Bioinformatics Databases

65	BioSystems	4:16	NCBI	Bioinformatics Databases
66	BioSample	2:56	NCBI	Bioinformatics Databases
66	Sequence Read Archive (SRA)	7:14	NCBI	Bioinformatics Databases
67	Introduction to Gene Expression Omnibus Database	9:15	NCBI	Bioinformatics Databases
67	Gene Expression Omnibus - Platforms	5:42	NCBI	Bioinformatics Databases
68	Gene Expression Omnibus - Samples	4:15	NCBI	Bioinformatics Databases
68	Gene Expression Omnibus - Series	4:00	NCBI	Bioinformatics Databases
69	Gene Expression Omnibus - Datasets	4:44	NCBI	Bioinformatics Databases
69	STRING: Comprehensive Protein-Protein Interaction Database	13:16	PPI Database	PPI Database
70	Gene Structure Display Server 2.0	8:35	Genomics Tools	Genomics Tools
70	Introduction to Python and it's Intallation	8:25	Introduction	Python
71	Comments	5:42	Introduction	Python
71	Basic Input and output	15:37	Introduction	Python

72	Mathematical Operations	7:20	Introduction	Python
72	Strings	21:51	Iterable Objects	Python
73	Dictionaries	10:57	Iterable Objects	Python
73	Lists	28:47:00	Iterable Objects	Python
74	Tuples	10:37:00	Iterable Objects	Python
74	Sets	7:35	Iterable Objects	Python
75	If-Else	9:19	Control Flow	Python
75	For Loop and Calculation of Molecular Weight of Proteins	10:56	Control Flow	Python
76	While Loop and Biological Data Analysis	9:37	Control Flow	Python
76	CSV (A special kind of file in Bioinformatics)	31:47:00	File Handling	Python
77	Reading Files	13:45	File Handling	Python
77	Writing Files	8:41	File Handling	Python
78	Consolidate(merge) multiple DNA and Protein Sequences into one FASTA file	7:17	File Handling	Python

78	OS	9:24	File Handling	Python
79	Functions	26:41:00	Functions & Modules	Python
79	With	8:50	Functions & Modules	Python
80	Error Handling	15:31	Error Handling	Python
80	Introduction to BioPython & Installation	10:18	Introduction	BioPython
81	Bio.Seq Create a Seq Object	7:38	Sequence Analysis	BioPython
81	Bio.Seq Seq Object Behaves Like a String	9:54	Sequence Analysis	BioPython
82	Bio.Seq Central Dogma in Play Through Python	8:41	Sequence Analysis	BioPython
82	Bio.Seq Unkown & Mutable Sequences	6:53	Sequence Analysis	BioPython
83	Bio.Alphabet Understanding the Alphabets of Biology	7:37	Sequence Analysis	BioPython
83	Bio.Alphabet IUPAC and Types of Sequence Representations	10:34	Sequence Analysis	BioPython
84	Bio.Alphabet Concatenation of Multiple Seq Records Using Generic Alphabets	9:47	Sequence Analysis	BioPython
84	SeqRecord Creating Seq Records	12:27	Sequence Analysis	BioPython

85	SeqRecords & FASTA	4:35	Sequence Analysis	BioPython
85	SeqRecords & GenBank	3:28	Sequence Analysis	BioPython
86	SeqRecord Formatting Records	3:47	Sequence Analysis	BioPython
86	SeqRecord Comparison & Reading Multiple FASTA Files from Directory	5:47	Sequence Analysis	BioPython
87	SeqIO Reading a Sequence File	10:32	Sequence Data Parsing	BioPython
87	SeqIO Parsing a Sequence File	7:16	Sequence Data Parsing	BioPython
88	SeqIO Parsing a Compressed Sequence File & Creating a Dictionary of Sequences	6:10	Sequence Data Parsing	BioPython
88	SeqIO - Write Sequences and SeqRecords Into Files	11:42	Sequence Data Parsing	BioPython
89	SeqIO Extracting Annotations and Pattern-wise Sequence Data Extraction	10:35	Sequence Data Extraction	BioPython
89	AlignIO - Reading and Parsing a Multiple Sequence Alignment File	8:19	Alignment Parsing and Analysis	BioPython
90	AlignIO - Writing Alignments and Multiple Sequence Alignment Records	5:28	Alignment Parsing and Analysis	BioPython
90	AlignIO - Conversion of Alignment Formats	4:01	Alignment Parsing and Analysis	BioPython
91	AlignIO - Manipulating Alignments	2:57	Alignment Parsing and Analysis	BioPython

91	AlignIO - ClustalW Python Wrapper - Align Multiple Sequences	7:47	Alignment Parsing and Analysis	BioPython
92	AlignIO - Pairwise2 - Align Two Sequences	7:31	Alignment Parsing and Analysis	BioPython
92	AlignIO - Information Mapping of Alignments	2:33	Alignment Parsing and Analysis	BioPython
93	AlignIO - Format Alignments	3:55	Alignment Parsing and Analysis	BioPython
93	AlignIO - Slicing Alignments	6:05	Alignment Parsing and Analysis	BioPython
94	Bio.Blast - Querying NCBI BLAST Through Python	11:41	BLAST Database Searching	BioPython
94	Bio.Blast - Parsing BLAST Results	14:51	Parsing BLAST results	BioPython
95	Bio.Entrez - Accessing ENTREZ Using Python	9:32	Biological Data Retrieval	BioPython
95	Bio Entrez Use Esummary To Get Summary Of Your Accessions	8:59	Biological Data Retrieval	BioPython
96	Bio.Entrez - Use EFetch to Download Complete Records	13:56	Biological Data Retrieval	BioPython
96	Bio.Entrez - Use EGQuery to Do Global Queries for Search Counts	7:24	Biological Data Retrieval	BioPython
97	Bio.Entrez - Use Elink To Search For Database Links Of Records	3:41	Biological Data Retrieval	BioPython
97	Bio.Entrez - Use ESearch to Search the Entrez Databases	8:20	Biological Data Retrieval	BioPython

98	Bio.Entrez - Use Espell To Get Correct Spellings For Your Search Terms	5:21	Biological Data Retrieval	BioPython
98	Bio.Entrez - Download GenBank and Entrez Records	14:17	Biological Data Retrieval	BioPython
99	Bio.Entrez - Taxonomy Database Searching	7:05	Biological Data Retrieval	BioPython
99	Bio.Entrez - Download PubMed Articles	8:28	Biological Data Retrieval	BioPython
100	Bio.Entrez - Use EFetch to Download Complete Records	13:56	Biological Data Retrieval	BioPython
100	Bio.PDB - Reading a PDB (3D Structure) File	11:59	Parsing a PDB Structure file	BioPython
101	Bio.Phylo - Calculating Distance Matrix Between Sequences For Phylogenetic Analysis	4:18	Phylogenetic Analysis	BioPython
101	Bio.Phylo - Converting Phylogenetic Tree Data Formats	3:28	Phylogenetic Analysis	BioPython
102	Bio.Phylo - Printing Out Phylogenetic Tree In Ascii	2:17	Phylogenetic Analysis	BioPython
102	Bio.Phylo - Reading Phylogenetic Trees	6:28	Phylogenetic Analysis	BioPython
103	Bio.Phylo - Visualization And Manipulation Of Phylogenetic Trees	9:36	Phylogenetic Analysis	BioPython
103	Bio.Phylo - Writing Out Phylogenetic Data	4:04	Phylogenetic Analysis	BioPython
104	Bio.motifs - Creating a WebLogo of Motifs		Protein Sequence Analysis	BioPython



104	Bio.motifs - MEME Analysis		Protein Sequence Analysis	BioPython
105	Introduction to R in Bioinformatics & R Installation	9:47	Introduction	R
105	The R Studio Interface Explanation	6:23	Introduction	R
106	Comments	4:16	Introduction	R
106	Sample & Replacement	9:09	Variables & Functions	R
107	Variable Declaration and Objects	5:24	Variables & Functions	R
107	Built-in Functions & ARGS	4:31	Variables & Functions	R
108	Write Your Own Functions And Arguments	5:39	Variables & Functions	R
108	Scripts	7:36	Variables & Functions	R
109	Attributes and Names	4:46	Vectors & Data Types	R
109	Characters	4:43	Vectors & Data Types	R
110	Doubles	3:30	Vectors & Data Types	R
110	Logicals	2:27	Vectors & Data Types	R

111	Factors	6:40	Vectors & Data Types	R
111	Atomic Vectors	2:42	Vectors & Data Types	R
112	Integers	3:23	Vectors & Data Types	R
112	Dim & Dimensions	5:46	Vectors & Data Types	R
113	Coercion	4:27	Vectors & Data Types	R
113	Lists	6:41	Vectors & Data Types	R
114	Matrix & Matrices	4:42	Vectors & Data Types	R
114	Arrays	3:42	Vectors & Data Types	R
115	Class	3:12	Vectors & Data Types	R
115	Packages	4:00	Packages	R
116	Getting Help with Help Packages	3:42	Packages	R
116	Install Bioinformatics Packages	5:25	Packages	R
117	Library & Initialization of Packages	2:27	Packages	R

117	Loading Biological Data	7:55	Biological Data Analysis	R
118	Zero Notation for Subsetting Biological Datasets	1:09	Biological Data Analysis	R
118	Saving Biological Data	5:26	Biological Data Analysis	R
119	R Notation & Selecting Values from Biological Dataset	4:09	Biological Data Analysis	R
119	Data Frames	6:30	Biological Data Analysis	R
120	Positive Integers for Subsetting Biological Dataset	5:25	Biological Data Analysis	R
120	Negative Integers for Subsetting Biological Dataset	5:28	Biological Data Analysis	R
121	Dollar Signs for Biological Dataset Subsetting	2:58	Biological Data Analysis	R
121	Blank Spaces For Biological Data Subsetting	3:20	Biological Data Analysis	R
122	Modifying Values in Existing Datasets	7:06	Biological Data Analysis	R
122	NA Values in Biological Dataset	5:24	Biological Data Analysis	R
123	Figuring out NA Values in Biological Dataset	2:06	Biological Data Analysis	R
123	Logical Subsetting in Biological Datasets	9:45	Biological Data Analysis	R

124	If Else Statement	4:15	Control Flow	R
124	For Loops & Biological Data Binding	16:30	Control Flow	R
125	While Loops & Reading Multiple Biological Datasets	16:16	Control Flow	R
125	ggplot2: Key components	8:25	Data Visualization: ggplot2	R
126	ggplot2: Human Mitochondrial Proteome & Aesthetics (Size, Shape, Color)	26:02	Data Visualization: ggplot2	R
126	ggplot2: Facetting of Human Genome	22:25	Data Visualization: ggplot2	R
127	ggplot2: Smooth Out the Biological Data	8:43	Data Visualization: ggplot2	R
127	ggplot2: Boxplots for Human Mitochondrial Proteome	7:55	Data Visualization: ggplot2	R
128	ggplot2: Histograms for Human Mitochondrial Pattern Finding	6:02	Data Visualization: ggplot2	R
128	ggplot2: Frequency Plots for Human Mitochondrial Information Frequency Mining	6:12	Data Visualization: ggplot2	R
129	ggplot2: Bar Charts Human Mitochondrial Knowledge Mining	10:43	Data Visualization: ggplot2	R
129	ggplot2 - Scaling and Limiting Data Visualization	3:53	Data Visualization: ggplot2	R
130	ggplot2 - Changing Labels and Finalizing Visualization	8:41	Data Visualization: ggplot2	R

130

ggtree - Phylogenetic Tree  
Visualization

5:41

Data Visualization:  
ggplot2

R

131

ggplot2 - Saving the Visualizations in  
High Resolution

4:44

Data Visualization:  
ggplot2

R