

| Days | Name | Durations | Category | Main Category |
|------|---|-----------|-----------------|-----------------------------|
| 1 | Introduction to National Center of Biotechnology Information (NCBI) | 18:01 | NCBI | Bioinformatics Databases |
| 2 | Sequence Analysis | 17:59 | NCBI | Bioinformatics Databases |
| 3 | Sequence Retrieval from NCBI | 16:16 | NCBI | Bioinformatics Databases |
| 4 | PubMed Central & ENTREZ | 11:06 | NCBI | Bioinformatics Databases |
| 5 | FASTA (Sequence Format) | 6:13 | Sequence Format | Bioinformatics File Formats |
| 6 | GenBank: Nucleotide Database on NCBI | 6:50 | NCBI | Bioinformatics Databases |
| 7 | GenBank (Sequence Annotation Format) | 7:08 | Sequence Format | Bioinformatics File Formats |
| 8 | FASTA vs. GenBank | 18:26 | NCBI | Bioinformatics Databases |
| 9 | Gene Database: A Comprehensive Gene Database | 30:21:00 | NCBI | Bioinformatics Databases |
| 10 | NCBI Genomes & NCBI Assembly: Retrieval of Genomes | 36:14:00 | NCBI | Bioinformatics Databases |

| | | | | |
|----|---|----------|-----------------|-----------------------------|
| 11 | Gene File Format/Gene Transfer Format | 11:06 | Sequence Format | Bioinformatics File Formats |
| 12 | BED (Gene Structure Format) | 4:26 | Sequence Format | Bioinformatics File Formats |
| 13 | SAM | 9:06 | Sequence Format | Bioinformatics File Formats |
| 14 | BAM | 9:06 | Sequence Format | Bioinformatics File Formats |
| 15 | RefSeq Database: Retrieval of Single Reference Sequences | 11:15 | NCBI | Bioinformatics Databases |
| 16 | BLAST Database Searching | 25:36:00 | NCBI | Bioinformatics Databases |
| 17 | Introduction to Molecular Modeling Database (MMDB) | 8:06 | NCBI | Bioinformatics Databases |
| 18 | Database of Short Genetic Variations (dbSNP) | 12:16 | NCBI | Bioinformatics Databases |
| 19 | HomoloGene: Discovery of Gene and Protein Families | 6:10 | NCBI | Bioinformatics Databases |
| 20 | Taxonomy | 9:56 | NCBI | Bioinformatics Databases |
| 21 | Introduction to UCSC Genome Browser & SARS-CoV-2 Viral Genome | 13:40 | UCSC | Bioinformatics Databases |

| | | | | |
|----|---|----------|---------|------------------------------|
| 22 | Retrieve an Entire Genome & Retrieval of SARS-CoV-2 Viral Genome | 9:40 | UCSC | Bioinformatics Databases |
| 23 | Retrieval of Genomic Data & Annotation of SARS-CoV-2 Viral Genome | 5:29 | UCSC | Bioinformatics Databases |
| 24 | Table Browser & SARS-CoV-2 Viral Genome | 12:15 | UCSC | Bioinformatics Databases |
| 25 | Visualization of Genomic Data on the Genome Browser & SARS-CoV-2 Genome | 10:51 | UCSC | Bioinformatics Databases |
| 26 | Introduction to UniProt | 9:56 | UniProt | Protein Databases & Analysis |
| 27 | UniProtKB & Protein Analysis | 39:29:00 | UniProt | Protein Databases & Analysis |
| 28 | UniProteome & Retrieval of an Entire Proteome | 13:05 | UniProt | Protein Databases & Analysis |
| 29 | ID Mapping & Making Analysis Easier | 7:17 | UniProt | Protein Databases & Analysis |
| 30 | Introduction to Protein Data Bank (PDB) | 6:44 | PDB | Protein Databases & Analysis |
| 31 | Accurately Searching for a Protein Structure on PDB & Protein Analysis | 13:55 | PDB | Protein Databases & Analysis |
| 32 | Biological Annotation and Protein Features View & Analysis | 8:18 | PDB | Protein Databases & Analysis |

| | | | | |
|----|---|----------|---------|------------------------------|
| 33 | Browsing PDB According to Annotation | 6:52 | PDB | Protein Databases & Analysis |
| 34 | Digging Out Categorized & Specific Protein Structures from PDB Archives | 6:23 | PDB | Protein Databases & Analysis |
| 35 | Alignment Between Two PDB Sequences & Structures | 6:07 | PDB | Protein Databases & Analysis |
| 36 | Introduction to ENSEMBL | 7:49 | ENSEMBL | Bioinformatics Databases |
| 37 | Retrieval of a Gene-Protein-Chromosomal Region | 18:01 | ENSEMBL | Bioinformatics Databases |
| 38 | Genome Assembly Retrieval and Analysis | 10:23 | ENSEMBL | Bioinformatics Databases |
| 39 | Gene Analysis & Annotation | 34:40:00 | ENSEMBL | Bioinformatics Databases |
| 40 | Variation Analysis | 24:36:00 | ENSEMBL | Bioinformatics Databases |
| 41 | ENSEMBL BLAST/BLAT | 15:08 | ENSEMBL | Bioinformatics Databases |
| 42 | Regulation - Understand the Influence of Regulatory Elements on Genes | 4:18 | ENSEMBL | Bioinformatics Databases |
| 43 | Comparative Genomics Analysis | 5:34 | ENSEMBL | Bioinformatics Databases |

| | | | | |
|----|---|----------|--|-------------------------------|
| 44 | Introduction to InterPro | 4:10 | InterPro | Protein Databases & Analysis |
| 45 | InterPro - Protein Family Classification and Analysis | 14:35 | InterPro | Protein Databases & Analysis |
| 46 | InterPro - Protein & Protein Domain Analysis | 9:29 | InterPro | Protein Databases & Analysis |
| 47 | Introducton to Phytozome | 9:38 | Phytozome | Bioinformatics Databases |
| 48 | Interpret Plant Genome Records | 9:06 | Phytozome | Bioinformatics Databases |
| 49 | Download an Entire Plant Genome & Proteome | 26:41:00 | Phytozome | Bioinformatics Databases |
| 50 | Keyword or BLAST Search in a Plant Genome | 15:58 | Phytozome | Bioinformatics Databases |
| 51 | Visualize a Plant Genome Using JBrowse | 17:38 | Phytozome | Bioinformatics Databases |
| 52 | EMBOSS NEEDLE: Global Alignment of Sequences | 20:02 | Pairwise Sequence Alignment & Analysis | Sequence Alignment & Analysis |
| 53 | EMBOSS Water | 9:10 | Pairwise Sequence Alignment & Analysis | Sequence Alignment & Analysis |
| 54 | Clustal Omega: Most Reliable Multiple Sequence Alignment Tool | 19:18 | Multiple Sequence Alignment & Analysis | Sequence Alignment & Analysis |

| | | | | |
|----|---|-------|--|--------------------------------|
| 55 | Clustal Omega Alignment Format | 5:07 | Alignment Format | Bioinformatics File Formats |
| 56 | Jalview | 13:42 | Multiple Sequence Alignment & Analysis | Sequence Alignment & Analysis |
| 57 | T-Coffee: Iterative Multiple Sequence Alignment Tool | 8:37 | Multiple Sequence Alignment & Analysis | Sequence Alignment & Analysis |
| 58 | MUSCLE: Accurate Multiple Sequence Alignment Tool | 21:07 | Multiple Sequence Alignment & Analysis | Sequence Alignment & Analysis |
| 59 | MEGA - Multiple Sequence Alignment | 4:23 | Multiple Sequence Alignment & Analysis | Sequence Alignment & Analysis |
| 60 | MEGA (Alignment Format) | 5:32 | Alignment Format | Bioinformatics File Formats |
| 61 | iTOL: Creating Publishable Phylogenetic Figures | 13:42 | Phylogenetic Tree Visualization & Analysis | Phylogenetic Analysis |
| 62 | FigTree | 21:26 | Phylogenetic Tree Visualization & Analysis | Phylogenetic Analysis |
| 63 | Quick2D | 4:33 | Secondary Structure Prediction | Secondary Structure Prediction |
| 64 | Ali2D | 4:09 | Secondary Structure Prediction | Secondary Structure Prediction |
| 65 | Jpred: Prediction Secondary Structure of the Proteins | 4:54 | Secondary Structure Prediction | Secondary Structure Prediction |

| | | | | |
|----|---|----------|-------------------------|------------------------------|
| 66 | HMMER - Hidden Markov Model Based Protein Profiles Database | 13:16 | Protein Analysis | Protein Databases & Analysis |
| 67 | SignalP: Prediction of Signal Peptides | 7:57 | Protein Analysis | Protein Databases & Analysis |
| 68 | TargetP: Prediction of Protein Localization | 9:21 | Protein Analysis | Protein Databases & Analysis |
| 69 | Pfam - Understand the Relation of a Protein to its Family and Clan | 15:55 | Protein Family Database | Protein Databases & Analysis |
| 70 | PROSITE - A Database of Protein Domian, Families and Functional Sites | 13:46 | Protein Family Database | Protein Databases & Analysis |
| 71 | ScanProsite - Scanning Protein for Important Protein Sites Against PROSITE Database | 7:36 | Motif & Domain Analysis | Protein Databases & Analysis |
| 72 | MODELLER: Most Commonly Used Homology Modelling | 36:13:00 | 3D Structure Prediction | 3D Structure Prediction |
| 73 | SwissModel: Homology Modeling Through Web-server | 12:52 | 3D Structure Prediction | 3D Structure Prediction |
| 74 | HHPred | 14:09 | 3D Structure Prediction | 3D Structure Prediction |
| 75 | M4T | 9:26 | 3D Structure Prediction | 3D Structure Prediction |
| 76 | IntFold | 8:41 | 3D Structure Prediction | 3D Structure Prediction |

| | | | | |
|----|---|----------|----------------------------|----------------------------|
| 77 | ROBETTA: ab initio Protein Structure Prediction | 14:39 | 3D Structure Prediction | 3D Structure Prediction |
| 78 | Homology Modeling Using MOE | 12:34 | 3D Structure Prediction | 3D Structure Prediction |
| 79 | UCSF CHIMERA | 25:23:00 | 3D Structure Visualization | 3D Structure Visualization |
| 80 | PyMol | 40:48:00 | 3D Structure Visualization | 3D Structure Visualization |
| 81 | WhatCheck | 8:40 | 3D Structure Evaluation | 3D Structure Evaluation |
| 82 | ProCheck | 12:40 | 3D Structure Evaluation | 3D Structure Evaluation |
| 83 | ERRAT | 6:44 | 3D Structure Evaluation | 3D Structure Evaluation |
| 84 | Verify3D | 8:31 | 3D Structure Evaluation | 3D Structure Evaluation |
| 85 | RAMPAGE | 3:29 | 3D Structure Evaluation | 3D Structure Evaluation |
| 86 | SAVES | 5:31 | 3D Structure Evaluation | 3D Structure Evaluation |
| 87 | PROSA | 10:05 | 3D Structure Evaluation | 3D Structure Evaluation |

| | | | | |
|-----|--|----------|------------------|--------------------------|
| 99 | Gene Expression Omnibus - Series | 4:00 | NCBI | Bioinformatics Databases |
| 100 | Gene Expression Omnibus - Datasets | 4:44 | NCBI | Bioinformatics Databases |
| 101 | STRING: Comprehensive Protein-Protein Interaction Database | 13:16 | PPI Database | PPI Database |
| 102 | Gene Structure Display Server 2.0 | 8:35 | Genomics Tools | Genomics Tools |
| 103 | Introduction to Python and it's Intallation | 8:25 | Introduction | Python |
| 104 | Comments | 5:42 | Introduction | Python |
| 105 | Basic Input and output | 15:37 | Introduction | Python |
| 106 | Mathematical Operations | 7:20 | Introduction | Python |
| 107 | Strings | 21:51 | Iterable Objects | Python |
| 108 | Dictionaries | 10:57 | Iterable Objects | Python |
| 109 | Lists | 28:47:00 | Iterable Objects | Python |

| | | | | |
|-----|---|----------|---------------------|--------|
| 110 | Tuples | 10:37:00 | Iterable Objects | Python |
| 111 | Sets | 7:35 | Iterable Objects | Python |
| 112 | If-Else | 9:19 | Control Flow | Python |
| 113 | For Loop and Calculation of Molecular Weight of Proteins | 10:56 | Control Flow | Python |
| 114 | While Loop and Biological Data Analysis | 9:37 | Control Flow | Python |
| 115 | CSV (A special kind of file in Bioinformatics) | 31:47:00 | File Handling | Python |
| 116 | Reading Files | 13:45 | File Handling | Python |
| 117 | Writing Files | 8:41 | File Handling | Python |
| 118 | Consolidate(merge) multiple DNA and Protein Sequences into one FASTA file | 7:17 | File Handling | Python |
| 119 | OS | 9:24 | File Handling | Python |
| 120 | Functions | 26:41:00 | Functions & Modules | Python |

| | | | | |
|-----|--|-------|-----------------------|--------|
| 121 | With | 8:50 | Functions & Modules | Python |
| 122 | Error Handling | 15:31 | Error Handling | Python |
| 123 | Introduction to R in Bioinformatics & R Installation | 9:47 | Introduction | R |
| 124 | The R Studio Interface Explanation | 6:23 | Introduction | R |
| 125 | Comments | 4:16 | Introduction | R |
| 126 | Sample & Replacement | 9:09 | Variables & Functions | R |
| 127 | Variable Declaration and Objects | 5:24 | Variables & Functions | R |
| 128 | Built-in Functions & ARGS | 4:31 | Variables & Functions | R |
| 129 | Write Your Own Functions And Arguments | 5:39 | Variables & Functions | R |
| 130 | Scripts | 7:36 | Variables & Functions | R |
| 131 | Attributes and Names | 4:46 | Vectors & Data Types | R |

| | | | | |
|-----|-------------------|------|----------------------|---|
| 132 | Characters | 4:43 | Vectors & Data Types | R |
| 133 | Doubles | 3:30 | Vectors & Data Types | R |
| 134 | Logicals | 2:27 | Vectors & Data Types | R |
| 135 | Factors | 6:40 | Vectors & Data Types | R |
| 136 | Atomic Vectors | 2:42 | Vectors & Data Types | R |
| 137 | Integers | 3:23 | Vectors & Data Types | R |
| 138 | Dim & Dimensions | 5:46 | Vectors & Data Types | R |
| 139 | Coercion | 4:27 | Vectors & Data Types | R |
| 140 | Lists | 6:41 | Vectors & Data Types | R |
| 141 | Matrix & Matrices | 4:42 | Vectors & Data Types | R |
| 142 | Arrays | 3:42 | Vectors & Data Types | R |

| | | | | |
|-----|---|------|--------------------------|---|
| 143 | Class | 3:12 | Vectors & Data Types | R |
| 144 | Packages | 4:00 | Packages | R |
| 145 | Getting Help with Help Packages | 3:42 | Packages | R |
| 146 | Install Bioinformatics Packages | 5:25 | Packages | R |
| 147 | Library & Initialization of Packages | 2:27 | Packages | R |
| 148 | Loading Biological Data | 7:55 | Biological Data Analysis | R |
| 149 | Zero Notation for Subsetting Biological Datasets | 1:09 | Biological Data Analysis | R |
| 150 | Saving Biological Data | 5:26 | Biological Data Analysis | R |
| 151 | R Notation & Selecting Values from Biological Dataset | 4:09 | Biological Data Analysis | R |
| 152 | Data Frames | 6:30 | Biological Data Analysis | R |
| 153 | Positive Integers for Subsetting Biological Dataset | 5:25 | Biological Data Analysis | R |

| | | | | |
|-----|---|-------|--------------------------|---|
| 154 | Negative Integers for Subsetting Biological Dataset | 5:28 | Biological Data Analysis | R |
| 155 | Dollar Signs for Biological Dataset Subsetting | 2:58 | Biological Data Analysis | R |
| 156 | Blank Spaces For Biological Data Subsetting | 3:20 | Biological Data Analysis | R |
| 157 | Modifying Values in Existing Datasets | 7:06 | Biological Data Analysis | R |
| 158 | NA Values in Biological Dataset | 5:24 | Biological Data Analysis | R |
| 159 | Figuring out NA Values in Biological Dataset | 2:06 | Biological Data Analysis | R |
| 160 | Logical Subsetting in Biological Datasets | 9:45 | Biological Data Analysis | R |
| 161 | If Else Statement | 4:15 | Control Flow | R |
| 162 | For Loops & Biological Data Binding | 16:30 | Control Flow | R |
| 163 | While Loops & Reading Multiple Biological Datasets | 16:16 | Control Flow | R |