

**Post Graduate Govt. College for Girls, Sector-42, Chandigarh**

**Teaching Plan for Bachelors(third & Fifth Semester) Session (2020-2021)**

**Class: B.Sc Bioinfo(E)-2<sup>nd</sup> Yr 3<sup>rd</sup> SEM**  
**Subject: Bioinformatics**

**Name of the Teacher: Dr. Vikas Sharma**  
**Paper: Sequence Analysis**

<b>S. No</b>	<b>Dates</b>	<b>Topics to be Covered</b>
Week 1	03/08/2020-08/08/2020	Introduction to Sequence Analysis
Week 2	10/08/2020-14/08/2020	Introduction to Sequence Analysis
Week 3	17/08/2020-22/08/2020	Global Alignment
Week 4	24/08/2020 - 29/08/2020	Local Alignment
Week 5	31/08/2020 - 05/09/2020	General Gap Penalty, Phylogenetics analysis
Week 6	07/09/2020 - 12/09/2020	Affine Gap Penalty
Week 7	14/09/2020 - 19/09/2020	BLAST algorithm, Rooted , Unrooted tree
Week 8	21/09/2020- 26/09/2020	Clustering methods
Week 9	28/09/2020 - 03/10/2020	SP measure, Tree of Life
Week 10	05/10/2020 - 10/10/2020	Clustal W
Week 11	12/10/2020 - 16/10/2020	Clustal X
Week 12	19/10/2020 - 24/10/2020	Bootstrapping
Week 13	27/10/2020 - 30/10/2020	Phylip
Week 14	03/11/2020 - 07/11/2020	Distance Methods
Week 15	09/11/2020 - 12/11/2020	Difference between Local Global Alignment
Week 16	16/11/2020 - 21/11/2020	Parsimony tree
Week 17	23/11/2020 - 28/11/2020	E value Scores

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**Teaching Plan for Bachelors(third & Fifth Semester) Session (2020-2021)**

**Class: B.Sc Bioinfo(E)-3Yr 5<sup>th</sup> SEM**

**Name of the Teacher: Dr. Vikas Sharma**

**Subject: Bioinformatics**

**Paper: Intro to Genomics**

<b>S. No</b>	<b>Dates</b>	<b>Topics to be Covered</b>
Week 1	03/08/2020-08/08/2020	Human Genome Project
Week 2	10/08/2020-14/08/2020	Human Genome Project
Week 3	17/08/2020-22/08/2020	Introduction to Sequencing
Week 4	24/08/2020 - 29/08/2020	Human genome sequence Annotation
Week 5	31/08/2020 - 05/09/2020	Repeats & types of repeats
Week 6	07/09/2020 - 12/09/2020	Coding regions
Week 7	14/09/2020 - 19/09/2020	Non-coding Regions
Week 8	21/09/2020- 26/09/2020	Sequencing Strategies
Week 9	28/09/2020 - 03/10/2020	Hierarchical, Shotgun Method
Week 10	05/10/2020 - 10/10/2020	Sequencing Manual
Week 11	12/10/2020 - 16/10/2020	Sequencing Automated
Week 12	19/10/2020 - 24/10/2020	Chain termination method
Week 13	27/10/2020 - 30/10/2020	SNPs
Week 14	03/11/2020 - 07/11/2020	Polymorphisms & types
Week 15	09/11/2020 - 12/11/2020	Capillary Electrophoresis
Week 16	16/11/2020 - 21/11/2020	Base calling
Week 17	23/11/2020 - 28/11/2020	Sequence Accuracy

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**Teaching Plan for Bachelors(third & Fifth Semester) Session (2020-2021)**

**Class: B.Sc Bioinfo(E)-1<sup>st</sup> Yr 1<sup>st</sup> SEM**

**Name of the Teacher: Dr. Vikas Sharma**

**Subject: Bioinformatics**

**Paper: Introduction to Bioinformatics**

<b>S. No</b>	<b>Dates</b>	<b>Topics to be Covered</b>
Week 1	03/08/2020-08/08/2020	Intro to Bioinformatics
Week 2	10/08/2020-14/08/2020	Intro to Bioinformatics
Week 3	17/08/2020-22/08/2020	Basics of Bioinformatics Technology
Week 4	24/08/2020 - 29/08/2020	Biological databases, Nucleotide sequence databases
Week 5	31/08/2020 - 05/09/2020	Protein Sequence databases
Week 6	07/09/2020 - 12/09/2020	Concepts of Intron, Exon Splice variants
Week 7	14/09/2020 - 19/09/2020	Detecting ORF
Week 8	21/09/2020- 26/09/2020	Open Reading Frame
Week 9	28/09/2020 - 03/10/2020	Introduction to Proteins
Week 10	05/10/2020 - 10/10/2020	Protein Structures
Week 11	12/10/2020 - 16/10/2020	Nucleic Acids
Week 12	19/10/2020 - 24/10/2020	Homolog, Similarity Identity.
Week 13	27/10/2020 - 30/10/2020	GenPept, Uniprot, Swissprot
Week 14	03/11/2020 - 07/11/2020	Entrez
Week 15	09/11/2020 - 12/11/2020	NCBI Resources
Week 16	16/11/2020 - 21/11/2020	NCBI Bookshelf
Week 17	23/11/2020 - 28/11/2020	Functional Divisions of NCBI

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**Teaching Plan for Bachelors(third & Fifth Semester) Session (2020-2021)**

**Class: B.Sc BTH-3Yr 5<sup>th</sup> SEM**  
**Subject: Tools in Bioinformatics**

**Name of the Teacher: Dr. Vikas Sharma**  
**Paper: Tools in Bioinformatics**

<b>S. No</b>	<b>Dates</b>	<b>Topics to be Covered</b>
Week 1	03/08/2020-08/08/2020	Intro to Bioinformatics
Week 2	10/08/2020-14/08/2020	Intro to Bioinformatics
Week 3	17/08/2020-22/08/2020	Basics of Bioinformatics Technology
Week 4	24/08/2020 - 29/08/2020	Biological databases, Nucleotide sequence databases
Week 5	31/08/2020 - 05/09/2020	Protein Sequence databases, PDB, SRS, Entrez
Week 6	07/09/2020 - 12/09/2020	Swiss Prot, TrEMBL, CDD, PFam
Week 7	14/09/2020 - 19/09/2020	Sequence Analysis, NWA, Local & Global Alignment
Week 8	21/09/2020- 26/09/2020	BLAST algorithm, types and Interpretation of BLAST result
Week 9	28/09/2020 - 03/10/2020	Substitution Matrices, PSSM, Log Odd ratio
Week 10	05/10/2020 - 10/10/2020	Consensus sequence, Motif , Profile
Week 11	12/10/2020 - 16/10/2020	Phylogenetics Analysis, Methods of tree Construction
Week 12	19/10/2020 - 24/10/2020	Genome Annotation, Tools of Gene Identification
Week 13	27/10/2020 - 30/10/2020	Protein structure prediction
Week 14	03/11/2020 - 07/11/2020	Methods of Protein Secondary structure prediction
Week 15	09/11/2020 - 12/11/2020	Methods of protein Tertiary structure prediction
Week 16	16/11/2020 - 21/11/2020	Methods of protein Tertiary structure prediction
Week 17	23/11/2020 - 28/11/2020	Rasmol