**DEPARTMENT OF BOTANY**

**Teaching Plan (Odd Semester) 2024-25**

**Dr. Divya Verma**

**Botany-DSE-02: Biostatistics and Bioinformatics for Plant Sciences 2nd Year, Sem III (Theory)**

| **Topic** | **Allocation of Lectures** | **Month wise schedule**  | **Tutorial/ Assignment/ Presentation** |
| --- | --- | --- | --- |
| **Unit 1- Introduction to Bioinformatics****Unit 2- Biological databases** | 8 lectures | August | Data bases |
| **Unit 3- Basic concepts of Sequence alignment****Unit 4- Molecular Phylogeny** | 8 lectures | September | **Sequence alignment** |
| **Unit 5- Introduction to Biostatistics****Unit 6- Data and sampling methods** | 8 lectures | October | **Phylogeny** |
| **Unit 7- Measures and deviations of central tendencies****Unit 8-Correlation and Regression****Unit 9- Statistical tests** | 6 lectures | November | **Correlation and Regression** |

**Botany-DSE-02: Biostatistics and Bioinformatics for Plant Sciences 2nd Year, Sem III (Theory) (Practical)**

| **Topic** | **Allocation of Lectures** | **Month wise schedule**  |
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| 1. Biological databases (NCBI, UniProt, PlantPepDB)2. Literature retrieval from PubMed | 2 Practical | August |
| 3. Sequence retrieval (protein and gene) from NCBI (formats - FASTA, GenBank and GenPept formats)4. Protein Structure retrieval from PDB (in pdb format) and isualization by viewing tools (Ras Mol/ J mol/Mol\*/Swiss 3D Viewer/Pymol) | 4 Practical | September |
| 5. Multiple sequence alignment (MEGA/Clustal omega)6. Construction of phylogenetic tree (PHYLIP/ MEGA/ Clustal omega).7. Calculation of standard deviation and coefficient of variation through manual calculation and using Microsoft Excel, using only ungrouped data) | 4 Practical | October |
| 8. Calculation of correlation coefficient values by Karl Pearson’s /Spearman Rank methods (through manual calculation and using Microsoft Excel)9. Student's t-test (using Microsoft Excel), chi square test (Manual and using Microsoft Excel) | 4 Practical | November |
| Mock and revision | 2 Practical | December |