

OBJECTIVES: To enable the students to

1. Learn to apply hypothesis testing via some of the statistical distributions
2. Discuss the various steps involved in conducting research
3. Acquire hands on training on various computational tools and techniques employed in Biological sequence analysis
4. Develop understanding about Biological data and database search tools

COURSE OUTCOMES: Students will

- **CO1:** Be able to list out different types of nurseries and beds
- **CO2:** Identify the nursery tools, implements and containers.
- **CO3:** Develop skill on potting media preparation and plant production
- **CO4:** Learn the technique of establishing cutting, layering, grafting etc.

PRACTICAL COURSE:

1. Measures of Location.
2. Measures of Dispersion.
3. Correlation Analysis.
4. Regression Analysis.
5. Student Paired t-Test.
6. X²- Test of Independence of Attributes
7. Introduction and use of various genome databases.
8. Sequence information resource: Using NCBI, EMBL, Genbank, Entrez, Swissprot/ TrEMBL, UniProt.
9. Similarity searches using tools like BLAST and interpretation of results.
10. Multiple sequence alignment using ClustalW.
11. Use of various primer designing and restriction site prediction tools.
12. Phylogenetic analysis of protein and nucleotide sequences.
13. Sequence alignments.
14. Sequence and structure visualization.

REFERENCES

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2. Fundamentals of mathematical statistics. S.C Gupta & Kapoor
3. Statistical methods in biological and Health Science. J. S. Milton & J.O. Tsokan.

4. Primrose SB. Principles of Genome Analysis: a guide to mapping and sequencing DNA from different organisms. 2nd Ed. 1998. Blackwell Science: Oxford. ISBN 0-632-04983-9.
5. Genome Mapping: A practical approach. Dear P (Editor). 1st Ed. 2000. Oxford University Press: Oxford.
6. Developing Bioinformatics Skills. Alfonso Valencia and Blaschke. L (2005) Oreille.s Publication.
7. Bioinformatics sequence, structure and data banks ed. By Des Higgins Willie Taylor. (2006).
8. Bioinformatics: A Practical Guide to the Analysis of Genes and Proteins" (Andreas D. Baxevanis, B. F. Ouellette), Paperback, 2nd ed., 470 pp., ISBN: 0471383910, Publisher: Wiley, John & Sons, Inc., Pub.

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