

ELECTIVE -V : BIOSTATISTICS AND BIOINFORMATICS

Biostatistics

Unit I

Sampling techniques – Data collection, tabular and graphical representation of data, mean, median, mode, range, variance, standard deviation and standard error.
Test of significance – Z-test, t-test, Chi-square test, F-test, Duncan's multiple range test.

Unit II

Probability distribution – Binomial, Poisson and normal distribution.
Correlation and regression – Simple, multiple regression, curvilinear regression, Analysis of variance – One-way, two-way Anova.

Unit III Bioinformatics

Introduction to computer system and their functions.
General awareness about the commercial packages like WordStar, word, lotus, fortran, D base and foxpro

Unit IV

Use of computer networking – LAN, WAN, MODEM, Fibre optics network, Introduction to Internet, WWW, NICN ET, ERNET, VSNL, ISDN.
Introduction to databanks – Protein sequence databanks – NBRF, FIR, SWISS – PROT, PDB
Nucleic acids data bank – Gene Bank – EMBL.

Unit V

Analysis tools for sequence data banks- pair wise alignment - alignment – CLUSTAL, PRAS, BLAST, FASTA algorithm to analyse sequence data, structural data bank, the Cambridge structural database (CSD).

REFERENCE:

- Gupta, S.P. 2001 Statistical methods, Sultan and Chand & Sons, New Delhi.
- Snellcar G.W. and Cochran, W.G. 1967 Statistical methods, Oxford & IBH Publ. Co. New Delhi.
- Alexis Leon, M.Leon, 2000. Fundamentals of Computer Science & Communication Engineering, Leon Tech World, Chennai.
- Baxevanis, A, Ovellette. F.B.F. 1998. Bioinformatics: A Practical guide to the analysis of genes and proteins. John wiley and sons, New York.
- Waterman, MS. 1995. Introduction to computational biology: Waps, sequences and genomes. Chapman & Hall, London.