

Part III – Elective Paper- III, BIOSTATISTICS & BIOINFORMATICS

Subject Code :- UZOAE03

Unit I

Biostatistics – Definition and Scope – Collection of Data – Census and sampling methods – Variable: Discrete and Continuous. Presentation of Data: Classification and tabulation, Diagrams and graphs: Bar, Pie, Histogram – Concept of statistical population and sample characteristics of frequency distribution.

Unit II

Measures of Central tendency: Definition and computation of Arithmetic mean, median and mode. Measures of Dispersion: Definition of Range, Quartile deviation and mean deviation. Definition and computation of Standard deviation for different types of data–

Unit III

Probability: Basic principles. Probability distribution-Binomial, Poisson and normal- Test of significance: Chi-square test, t- test. Measures of skewness – Karl Pearson's coefficient of skewness Bowley's coefficient of skewness – Measures of Kurtosis.

Unit IV

Correlation: Definition and types –Co-Efficient of correlation: Spearman's Rank correlation coefficient – Concurrent deviation method, Regression analysis. Analysis of variance, Discriminant functional analysis

Unit V

Bio-informatics: Scope, importance and applications- Biological data base-DNA structure, determination and sequence analysis-protein structure determination and sequence analysis – FASTA and its variations & BLAST-Human genome project. Computer aided drug designing, Pharmacogenomics and Pharmacogenetics.

Text Book.

1. An Introduction to Bistatistics, N.Gurumani, 2nd Edition 2005. MJP Publications Chennai-5

Reference:

1. Practical Statistics – S.P. Gupta
2. Rangaswamy R.A., Textbook of Agriculture Statistics, New Age International Publishers, 1995.
3. Narasimhan, M. Learning with BASIC (Book I,II,III) Tata McGraw Hill Publishing Co., Ltd., New Delhi. 1996.
4. Goutham Roy. Introduction to Computing and Computing lab and Cad 2002, Books and Allied (p) Ltd.
5. Introduction of computing science and Programming in BASIC – Dr. S.K. Nag – Books and Allied (p) Ltd.
6. Parag Rastogi, “ Bioinformatics Methods, and application: Genomics Proteomics and drug discovery, PHI Learning Pvt. Ltd., 3rd edition, 2008.
7. Warren J. Ewens, Gregory R. Grant, “ Statistical methods in Bioinformatics: An introduction”, 2nd edition, Springer 2004.