VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

M.Sc. Biotechnology (Five years integrated course)

Semester - II

IBT: 204
Course Title: Biostatistics

Unit-I (7 hrs.)

1. Introduction to Biostatistics: Definition, characteristics of statistics, importance and applications, limitations. Variable and constants, population and sample, parameter and statistic, Tabulation and frequency distribution, Graphical representation of data,

Unit –II (7 hrs)

2. Central tendency, Variation; standard deviation, standard error.
3. Probability; definition, terms and concepts, theorems of probability.
4. Correlation: Correlation, covariance, correlation analysis, Pearson's correlation coefficient Scatter and dot methods.
5. Regression: Regression analysis, regression coefficient, standard error of estimate, linear regression.

Unit-III (7 hrs.)

6. Theoretical distributions: Binomial distribution, Poisson distribution, Comparison between binomial and Poisson distribution, normal distribution, properties of normal curve.

Unit IV (7 hrs.)

7. Estimation; types of estimation, confidence interval and level of confidence.
8. Test of significance (parametric test): Procedure of testing hypothesis, types of errors, Relation between hypothesis testing and confidence interval estimation.
9. Test of significance of mean, difference between two means, difference between two standard deviations, two samples – large samples.

Unit V (7 hrs)

10. t test for small samples: students distribution, assumptions for t-test, properties of t-distribution, applications of t-distribution, determination of sample size
11. Chi square test: degrees of freedom, Chi-square distribution, conditions of using the Chi-square test, test of goodness of fit, distribution of sample variance, normally distributed population variance.
12. F test: Assumptions in F test. Variance of two populations
13. Analysis of variance

Unit VI (7 hrs.)

14. Software utilized for statistical analysis

a. SPSS
b. KY plot
c. ESPDF analysis
d. Minitab
e. Curve fitting programme

References:

1. Statistical methods for Biologists – S.Palanichamy and M.Manoharam, Palani Paramount Publication, 1994
2. An Introduction to Biostatistics – P.S.S.Sunder Rao and J. Richard, Prentice Hall of India Pvt.Ltd. 1996
3. Biostatistics – P.N.Arora and P.K.Malhan, Himalaya Publishing House, 1996