**Subject Code : P8GTE1**

## ELECTIVE COURSE I – BIOSTATISTICS

Scope: This course targets students knowledgeable in instrumental methods of analysis and thus can generate data. It aims to empower such students in the statistical analysis of data, interpretation of results for writing report / thesis / research dissertation. The paper provides hand on experience with model sums extending the acquired skill to use and apply statistical soft-wares like **COSTAT, SPSS & STATISTICA**

### Unit I

Research: Definition – Stage in the execution of research – thesis and paper writing – MS – Journal format – proof reading – gallery proof correction: symbols, Paper presentation: Oral and Posters – Facing the viva voce, Communication skills for effective presentation – Power point preparation

### Unit II

Sources of information: Seminal papers, journals, reviews, books, monographs, bibliography, Standard of research journals: paid and unpaid journals, peer reviewed, Quality indices of journals: Impact factor-citation index, Information retrieval, Achieves, databases, Search engines: Goggle, Pubmed, Online database library

### Unit III

Biometry: Measures of dispersion: Universe, delimiting the population-mean, Random and stratified random sampling-variables (Definition): qualitative (scaling method), quantitative, continuous, discontinuous – Distinction between Parametric and non parametric methods, mode & median – Model sums : Calculation of mean, SD , SE, CV.

### Unit IV

Basics of normal, binomial and Poisson Distribution – Null and alternate hypotheses, type I and II errors, testing significance – use of statistical tables and levels of significance, Statistical tools; Model sums – students 't', Chi-Square (Mendel's ration testing), contingency table – confidence intervals single mean.

### Unit V

Statistical tools (continued): ANOVA: One way, two way, MANOVA, multiple range tests; Dunnet, Duncan, Tukey, Bivariate relationship: types of Correlation & regression – significance and confidence intervals of r and b – fitting regression line-predicted & observed Y – partitioning explained & unexplained variation in regression. Model sums: Regression, Correlation, one way ANOVA with Duncan's test.

### REFERENCES:


1. Davis, G.B. & Parker, C.A. 1997, Writing the doctoral dissertation, Barron's Educational series, 2nd edition, pp 160: ISSBN: 0812098005
2. Duncary, P. 2003, Authoring a Ph.D. Theis
3. Snedecor, G.W. and Cochran, W.G. 1978, Statistical methods, Oxford and IBH Publishing House, Pvt. Ltd., New Delhi
4. Sokal, R.r. and Rohlf. F.J. 1981, Biometry, Freeman W.H. New york
5. Zar, J.H. 1996, Biostatistical Analysis, Prentice Hall, Upper Saddle River, New Jersey, USA