



**MAHATMA GANDHI UNIVERSITY
NALGONDA
CHOICE BASED CREDIT SYSTEM (CBCS)
(With Effect from Academic Year 2016 -17)**

BIOSTATISTICS (BST306)

Unit – I:

Basic Mathematical Principles that are commonly used in biology sets, integers, linear and non-linear graphs; 2d Coordinate geometry, Equation of line, circle, ellipse and hyperbola; 3D geometry, equation of sphere and cone; Boolean algebra and logic, bits, bytes; Matrix algebra

Unit – II:

Nature and Scope of Statistical methods and their limitations, compilation, classification, tabulation and applications in pharma and life sciences; Graphical representation; Measures of Average and Dispersion Stem and Leaf Plots; Box and Whisker Plots, Co-plots; Introduction to Probability Theory and Distributions (Concepts without Derivations), Binomial, Poisson & Normal Distributions (Only definition and Problems)

Unit – III:

Sampling Methods: Simple, Random, stratified, Systematic and Cluster Sampling Procedures; Data Collection, Data Organization and Data Representation; Bar, Pie, 2-D and 3-D Diagrams; Sampling and Non-Sampling Errors; Sampling Distributions; Principles of Scientific Experiments; Concepts of CRD, RBD and Latin Square Designs;

Unit – IV:

Inference Concerning Means: Point Estimation – Interval estimation – Bayesian estimation – Tests of Hypothesis; Common Parametric and Non parametric tests employed in testing of significance in biological/pharmaceutical experiments and elements of ANOVA (one way and two way)

Statistical basis of biological assays: Response-Dose Metameter, Delusion Assays, direct and Indirect Assays, Standard line Interpolation assay, Parallel line Assay (4 Point and 6 Point Assays) and Slope Ratio Assay; Statistical Quality Control Charts and Application of Statistical Concepts in Pharmaceutical Sciences

Text and Reference Books:

1. Probability and Statistics by M.R Spiegel Schaum Series
2. Biostatistics: A Foundation for analysis in Health Sciences, by Danial W.W., John Wiley
3. Statistics for Biologists, by Campbell, R.C., Cambridge University Press
4. Practical statistics for experimental Biologists, by Wardlaw, A.C., John Wiley and Sons Inc.