

SARDAR PATEL UNIVERSITY
Programme: MSc (Zoology)
Semester: III
Syllabus with effect from: June 2011

Paper Code: PS03EZOO01	Total Credits: 4
Title Of Paper: Biostatistics	

Unit	Description in detail	Weightage (%)
1	Data Collection and Presentation : Types of Biological Data: Qualitative Data -Nominal, Ordinal, Ranked; Quantitative Data: Discrete and Continuous. Understanding of Population and sample Methods of Collection of Data: (i) Experimental Data and (ii) Survey Data- Simple random sample (with and without replacement), stratified sampling and cluster sampling. Tables: Frequency Distributions, Relative Frequencies. Graphical Presentation: Bar charts, Histograms, Frequency Polygons, One way scatter plots, Box plots, two-way scatter plots, line graphs. Practicals using MS-Excel.	
2	Descriptive Statistics Measures of Central Tendency: Mean, Median and Mode, quartiles, deciles and percentiles (both for raw data and grouped data). Measures of Dispersion: Range, Interquartile Range, Variance, Standard Deviation and Coefficient of Variation. Measures of Skewness and Kurtosis. Practicals Using MS-Excel.	
3	Probability and Probability Distributions: Random Experiment: Elementary outcomes, events, and Sample Space. Mathematical Definition of Probability, Marginal Probability, Marginal Probability and Conditional Probability. Independent Events. Some simple laws of probabilities(Statements only). Random Variables: Discrete and Continuous. Some examples from biological sciences. Probability Distributions: Binomial Distribution, Standard Normal Distribution ,General Normal Distribution; Sampling Distributions- t, chi-square and F distributions.	
4	Testing of hypotheses: Statistical hypotheses: Null and Alternative hypotheses. Simple and Composite hypotheses. Statistical Tests: Acceptance region and Rejection Region. Types of errors and power of the test. Goodness of fit tests. Significance Tests for Normal Distribution: One sample tests for mean – z test and t-test. Two sample tests for normal distributions: Tests for means (i) when variances are known (ii) when variances are unknown. Tests for equality of variances. Paired t-test for equality of means. Confidence Intervals Practicals using MS EXCEL.	
5	Bivariate and Multivariate Data: Some examples on bivariate and multivariate data. Correlation: Simple, partial and multiple correlation Coefficients. Regression: Simple and multiple linear regressions. Logistic Regression. Analysis of Variance: Completely Randomized Design, Randomized Block Design Practicals Based on SPSS	

Basic Text & Reference Books: -----

