S.Y B.Sc. BIOTECHNOLOGY
SEMESTER III

BIO-III.E-3 Biostatistics

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TEACHING SCHEDULE

Unit	Sub Topics	Lecture no	Reference Books
1. Scope & importance of Biostatistics	Definition; importance and applications of Biostatistics	1,2	1,2,3,4
2. Introduction to Sampling	Concepts of statistical population, sample, advantages and disadvantages of sampling Types of data; collection of data: primary & secondary data Types of sampling – simple; random sampling; stratified random sampling; systematic sampling; cluster sampling.	3-5	1,2,3,4
3. Graphical & Diagrammatic representation of data	Tabulation of data; graphical and diagrammatic representation of data; construction of graphs using MS Excel	6-8	1,2,3,4
4. Measures of central tendency	Characteristics of ideal measure; arithmetic mean – simple, weighted, combined, and corrected mean; limitations of arithmetic mean;	9,10	1,2,3,4
	median – calculation for raw data, for grouped data, for continuous series, limitations of median;	11	
	mode –computation of mode for individual series, by grouping method in a continuous frequency distribution, limitations of modes;	12	
	relationship between mean, median and mode; geometric mean; harmonic mean; quartiles; deciles; percentiles	13,14	
5. Measure of dispersion	Range, mean deviation, coefficient of mean deviation, standard deviation (individual observations, grouped data, continuous series)	16,17	1,2,3,4
	variance, coefficient of variance, limitation Skewness – definition; positive; negative; Karl pearson's coefficient, Bowley's Coefficient	18-21	
	CA I	22	
6. Correlation & regression analysis	Correlation; covariance; correlation coefficient for ungrouped data; Spearson's rank correlation coefficient; scatter and dot diagram (graphical method); regression; examples from biological sciences	23-26	1,2,3,4
	CA I feed back	27	
7. Hypothesis testing	Parameter and statistics; sampling theory; sampling and non-sampling error; confidence limits	28-37	1,2,3,4

	testing of hypothesis; test of significance; students' T-test; paired t-test;F test; Chi-square test and ANOVA		
	CA II	**38**	
	Extra lecture – solving biostatistics problems &	39-40	
	CA I feed back	41	
	Revision & mock test	42-45	

References

1. Pranab Kumar Banerjee Introduction to Biostatistics, Sheth Publishers, India

2. Khan & Khanum (2004). Fundamentals of Biostatistics. Ukaaz publications.

3. Banerjee, P. K. (2011).   Introduction to Biostatistics. A textbook of Biometry. New Delhi, India: S. Chand & Company Ltd.

4. Glover and Mitchel.(2002). An Introduction to Biostastics. McGrewHill Publishers