

Annexure L

FACULTY OF SCIENCES

SYLLABUS

For

Bachelor of Science (Honours) Bio-Technology

Semester III

**(Under Credit Based Continuous Evaluation Grading System)
(CBCEGS)**

Session: 2025-26



The Heritage Institution

KANYA MAHA VIDYALAYA JALANDHAR

(Autonomous)

Kanya Maha Vidyalaya, Jalandhar (Autonomous)

Scheme and Curriculum of Examinations of Four Year Degree Programme

(Under Credit Based Continuous Evaluation Grading System) (CBCEGS)

Bachelor of Science (Honours) (Bio-Technology) Four Year Degree Programme
Semester-III

Session: 2025-26

Bachelor of Science (Honours) (Bio-Technology) Semester-III										
Course Code	Course Title	Course Type	Hours per week L-T-P	Credits L-T-P	Total Credits	Marks				Examination time (in Hours)
						Total	Ext.		CA	
							Th	P		
BBTM-3332	Biomathematics and Biostatistics	DSC	4-0-2	4-0-1	5	100	50	20	30	3+3

DSC-Discipline Specific Course

Bachelor of Science (Honours) (Bio-Technology)
Semester–III
Session 2025-26
Course Title: Biomathematics and Biostatistics
Course Code: BBTM-3332
Course Outcomes

Upon completion of this course, students should be able to:

CO 1: Calculate Significant digits, differentiation and integration and to understand the concept of population and samples, Random sampling.

CO 2: Calculate summary statistics (mean, median, mode, range, standard deviation and variance) from the data.

CO 3: Familiar with the graphical representation of data, concepts of correlation and regression, Binomial, Poisson and Normal Distribution.

CO 4: State the null hypothesis and alternative hypothesis (both one way and two ways) for the application of t-test, F test, Chi Square test and ANOVA.

Bachelor of Science (Honours) (Bio-Technology)
Semester–III
Session 2025-26
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Examination Time: (3+3) Hours
L-T-P
4-0-1

Max. Marks: 100
Theory: 50
Practical: 20
CA: 30

Instructions for the paper setters: Eight questions of equal marks (10 marks each) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

Unit-I

Scientific notation, Significant digits, Rounding off, Log, Indices. Differentiation and Integration of Standard Functions, derivative & integration of trigonometric functions, inverse trigonometric functions, logarithmic functions and exponential functions, logarithmic differentiation & integration, results relating to the sum, difference, product and quotient of functions (without proofs).

Unit-II

Measurement of Central tendency, mean, geometric mean, harmonic mean, Median, Mode, Quartile mean, decile, percentile, Dispersion, Mean Deviation, Standard Deviation, Geometrical Standard Deviation, Coefficient of variation, Variance, Coefficient of determinant, moments, skewness and kurtosis.

Unit-III

Graphical representation of data, scattered diagram, Straight line, Least square test, Correlation coefficient, Regression Coefficient. Normal distribution, Poisson distribution, Binomial distribution.

Unit-IV

Sampling Data Collection, Testing of hypothesis, null and alternate hypothesis, level of significance, Standard error, Type- I, Type-II error, Student 't' test as a test of single mean and difference of mean and 'F' test as a test of equality of variances, Chi-square test (Goodness of fit & Association of Attributes), Wilcoxon Test, Analysis of variance (one way ANOVA).

Text Book:

P.N. Arora, P.K. Malhan, Biostatistics, Himalaya Publishing House, thoroughly revised edition, 2020.

Reference Books:

1. Mathematics Textbook for class XI, NCERT
2. Mathematics Textbook for class XII, NCERT
3. Robert R. Sokal and F. James Rohlf, Introduction to Biostatistics, Dover Publications, INC, Mincola, New York, 2nd Edition 2009

Reference Books:

1. Kothari, C.R. (2004) Research Methodology Methods and Techniques, New Age International Publications, New Delhi
2. Arora, P.N. & Malhan, P.K.: Biostatistics (Himalaya Publication House)
3. Robert R. Sokal and F. James Rohlf Introduction to Biostatistics

Practicals:

- Graphical representation of data (bar charts, line graphs)
- Computation of Descriptive Statistics
- Paired samples t test, and One Way ANOVA
- Computation of Correlation coefficient (Pearson, Spearman)
- Computation of Linear Regression model
- Performs unpaired t test and paired t test using Graph PAD