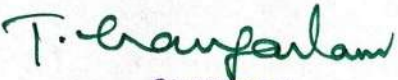


**Syllabus for 4-Year UG Honours in B.Sc. (Statistics) as Major in consonance with
Curriculum framework w.e.f. AY 2026-27**

COURSE STRUCTURE (for Semester III)

Year	Semester	Course	Title of the Course	No. of Hrs /Week	No. of Credits
II	III	5	Statistical Methods	3	3
			Statistical Methods Practical Course	2	1
		6	Inferential Statistics	3	3
			Inferential Statistics Practical Course	2	1
		7	Sampling Techniques	3	3
			Sampling Techniques Practical Course	2	1


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SEMESTER - III

COURSE 5: STATISTICAL METHODS

Theory

Credits: 3

3 hrs/week

Course Outcomes

After successful completion of the course students will be able to:

1. To get the knowledge of estimating future values by using curve fitting.
2. To calculate the relationship between bivariate data.
3. To find the relationship about the multivariate data.
4. To acquaint about the forecasting of the data by using regression techniques.
5. To find the association of the categorical data by using attributes.

Unit – 1: Curve fitting

Bivariate data, Principle of least squares, fitting of k^{th} degree polynomial. Fitting of straight line, Fitting of Second degree polynomial, fitting of family of exponential curves and power curve.

Unit – 2: Correlation

Meaning, Types of Correlation, Measures of Correlation – Scatter diagram, Karl Pearson's Coefficient of Correlation, Rank Correlation Coefficient (with and without ties), Properties. Bivariate frequency distribution, correlation coefficient for bivariate data and problems.

Unit – 3:

Coefficient of concurrent deviation, probable error and its properties, coefficient of determination, Concept of multiple and partial correlation coefficients (three variables only), properties and problems, Intra-class correlation and correlation ratio.

Unit – 4: Regression

Concept of Regression, Linear and Non-Linear regression. Linear Regression – Regression lines, Regression coefficients and its properties, Angle between two lines of regression. Regressions lines for bivariate data and simple problems. Correlation vs regression. Explained and Unexplained variations.

Unit – 5: Attributes

Notations, Class, Order of class frequencies, Ultimate class frequencies, Consistency of data, Conditions for consistency of data for 2 and 3 attributes only, Independence of attributes, Association of attributes and its measures, Relationship between association and colligation of attributes.


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Text Books

1. S. C. Gupta & V. K. Kapoor: Fundamentals of Mathematical Statistics, Sultan Chand & Sons, New Delhi.
2. K. Rohatgi & Ehsanes Saleh: An Introduction to Probability and Statistics, John Wiley & Sons.

References

1. O. P. Gupta: Mathematical Statistics, Kedar nath Ram nath & Co.
2. P. N. Arora & S. Arora: Quantitative Aptitude Statistics – Vol II, S. Chand & Company Ltd.

Suggested Co-curricular Activities:

1. Training of students by related industrial experts.
2. Assignments including technical assignments if any.
3. Seminars, Group Discussions, Quiz, Debates etc. on related topics.
4. Preparation of audio and videos on tools of diagrammatic and graphical representations.
5. Collection of material/figures/photos/author photoes of related topics.
6. Invited lectures and presentations of stalwarts to those topics.
7. Visits/field trips of firms, research organizations etc.


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SEMESTER - III

COURSE 5: STATISTICAL METHODS

Practical

Credits: 1

2 hrs/week

List of Experiments:

1. Fitting of straight line by the method of least squares.
2. Fitting of parabola by the method of least squares.
3. Fitting of exponential curve of two types by the method of least squares.
4. Fitting of power curve of the type by the method of least squares.
5. Computation of correlation coefficient and regression lines for ungrouped data.
6. Computation of correlation coefficient for bivariate frequency distribution.
7. Computation of correlation coefficient, forming regression lines for grouped data.
8. Computation of partial and multiple correlation coefficients.
9. Computation of Yule's coefficient of association and colligation.


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4- Year UG Honours, Major
Syllabus
(2026-27)
Semester-III

Model Question Paper

Time : 3hrs

Marks:75

Part-A

Answer any Five Questions. Each Question carries 3 Marks.

5x3=15

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

Answer the following questions. Each question carries 12 Marks

5x12=60

11. a) Unit-I
(Or)
b) Unit-I

12. a) Unit-II
(Or)
b) Unit-II

13. a) Unit-III
(Or)
b) Unit-III

14. a) Unit-IV
(Or)
b) Unit-IV

15. a) Unit-V
(Or)
b) Unit-V