

St. Xavier's College (Autonomous), Ahmedabad
Syllabus of Semester – I of the following departments under Faculty of Science
based on Under Graduate Curriculum Framework – 2023 (NEP)
to be implemented from the Academic Year 2023-24.

FACULTY OF ARTS

DEPARTMENT OF STATISTICS

Course	Title	Content	Hours/Week	Credit
STMN111C	Statistical Methods – 1	U-1: Statistics, Classification and Tabulation of Data, Graphs & Diagrams U-2: Measures of Central Tendency U-3: Measures of Dispersion U-4: Skewness and Kurtosis	4 hrs	4

STMN111C Statistical Methods-1

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credit Distribution of The Course (Total - 04 Credit)			Eligibility Criteria	Prerequisite(s) of the Course (if any)
	Lecture	Practical	Experiential Learning		
Statistical Methods – 1 & STMN111C	4	0	0	10 + 2 from a recognized board in any stream	Basic Mathematics, Observation & Analytical Skills

Course Outcomes:

- CO-1 Identify the sources of data emission, record the data meaningfully, perform Exploratory Data Analysis and draw useful conclusions.
- CO-2 Able to compute suitable measures of averages from sample data
- CO-3 Able to compute suitable measures of dispersion from sample data
- CO-4 Able to compute suitable measures of skewness, and kurtosis from sample data

Learning Outcomes: After completion of this course, the students will be able to

- (1) The basic concepts of Classification and Tabulation of Data, Graphs and diagrams
- (2) Introduction and calculations of measures of central tendency, measures of dispersion, skewness, and kurtosis.

Unit: 1 Statistics, Classification and Tabulation of Data, Graphs & Diagrams (15Hrs)

- Definitions of Statistics.
- Concept of classification.
- Types and importance of classification.
- Concept of tabulation.
- Types of tabulation.
- Types of statistical variable.
- Formulation of discrete and continuous series for univariate & bivariate data.
- Representation of statistical data by
 - a) Histogram
 - b) Frequency Polygon
 - c) Frequency Curve and Cumulative Frequency Curves of less than and more than type (Ogive curves)
- To obtain median, mode, quartiles, deciles, percentiles, from the above graphs and simple examples.

Unit: 2 Measures of Central Tendency (15Hrs)

- Meaning of central tendency.
- Various measures of central tendency: arithmetic mean, median, mode, their merits and demerits.
- Simple examples of Mean, Median and Mode.
- Positional Measures of central tendency: Quartiles, deciles, percentiles and their merits and demerits, Simple examples.

Unit: 3 Measures of Dispersion (15Hrs)

- Definition of dispersion.
- Range, quartile deviation, mean deviation, standard deviation
- Coefficient of dispersion, coefficient of variation.
- Simple examples to find various measures of dispersion by different methods (Range, Q.D., M.D., S.D) for grouped and ungrouped data.

Unit: 4 Skewness and Kurtosis (15Hrs)

- Meaning of Skewness.
- Tests of skewness, Measures of Skewness
- Karl Pearson's and Bowley's coefficients of skewness.
- Meaning of kurtosis, Measures of kurtosis.

Teaching Methodology: Apart from the conventional blackboard teaching, other modes of teaching that will be adopted are power points, group discussions, quizzes, class tests, problem-solving, and assignments.

References:

1. D.S. Sancheti & V. K. Kapoor: Statistics: Theory, Methods & Application”, Sultan Chand & Sons, New Delhi.
2. D. N. Elhance: Fundamentals of statistics”
3. Goon, Gupta, Das Gupta: An outline of statistical Theory” Vol1 and 2, Word press, Calcutta.
4. Mathematics books of standard 11th and 12th science published by NCERT/State boards of Education
5. D.S. Sancheti & V.K. Kapoor: “Business Mathematics” Sultan Chand & Sons, New Delhi.
6. Parimal Mukhopadhyay: “Mathematical Statistics” Books & allied (p) Ltd.