

<b>Semester</b>	<b>ONE</b>
<b>Course</b>	<b>Major</b>
<b>Paper Code</b>	<b>C1ST230112T / C1ST230112P</b>
<b>Paper Title</b>	<b>Descriptive Statistics I</b>
<b>No. of Credits</b>	<b>4</b>
<b>Theory / Practical /Composite</b>	<b>Composite</b>
<b>Classes per week</b>	<b>3 Theory and 2 Practical</b>
<b>Module</b>	<b>1</b>

### Course Outcomes

<b>1. Remember</b> the concepts of population and sample, primary and secondary data, and scales of measurement.
<b>2. Understand</b> the nature of Statistics and data features: central tendency, dispersion, skewness, and kurtosis.
<b>3. Apply</b> moments, quantiles, and the method of least squares.
<b>4. Analyze</b> frequency distributions through histograms, ogives, box plots, and scatter plots.
<b>5. Evaluate</b> simple correlation, spurious correlation, and the coefficient of determination.
<b>6. Create</b> summaries of quantitative and qualitative data

### Syllabus

<b>Unit/Module</b>	<b>Content</b>	<b>No. of lectures</b>	<b>CO mapping</b>	<b>Cognitive levels</b>
<b>Unit 1</b>	<b>Basics of data:</b> concept of population and sample; survey and experimental data; primary and secondary data; variable and attribute; scales of measurement. Exposition to different types of data through real life examples. Notion of big data.	5	CO1 CO2	K1 K2
<b>Unit 2</b>	<b>Statistical Methods:</b> Frequency distributions; column diagram and step diagram; histogram and ogive. Frequency curves. Features of data: central tendency, dispersion, skewness and kurtosis. Descriptive tools: moments and quantiles.	9	CO3 CO4	K3 K4
<b>Unit 3</b>	<b>Univariate data:</b> Measures of central tendency and dispersion for quantitative and qualitative (both nominal and ordinal) data. Measures of skewness and kurtosis for quantitative and qualitative (ordinal only) data. Box Plot	15	CO5 CO6	K5 K6

<b>Unit 4</b>	<b>Bivariate data:</b> Definition; scatter plot; bivariate frequency distribution. Simple correlation; spurious correlation. Least squares and simple linear regression; coefficient of determination.	10	CO1 CO2 CO3 CO4 CO5 CO6	K1 K2 K3 K4 K5 K6

### Reading/Reference list

1. Goon A.M., Gupta M.K. and Dasgupta B. (2002): Fundamentals of Statistics, Vol. I, & II, 8th Edn. The World Press, Kolkata.
2. Yule G.U. and Kendall M.G (1994) : An Introduction to the theory of Statistics. 14 <sup>th</sup> Edn. Universal Book stall, Delhi.
3. Hogg, R.V., Tanis, E.A. and Rao J.M. (2009): Probability and Statistical Inference, Seventh Ed, Pearson Education, New Delhi.

### Evaluation

Marks	Theory CIA:15 Semester Exam: 45	Practical CA: 40 Semester Exam: NA
Paper Structure for Theory Semester Exam	5 Marks Questions 3 out of 5	15 Marks Questions 2 out of 3

CO	CO Description	Cognitive levels
CO1	<b>Remember</b> the concepts of population and sample, primary and secondary data, and scales of measurement.	K1
CO2	<b>Understand</b> the nature of Statistics and data features: central tendency, dispersion, skewness, and kurtosis.	K2
CO3	<b>Apply</b> moments, quantiles, and the method of least squares.	K3
CO4	<b>Analyze</b> frequency distributions through histograms, ogives, box plots, and scatter plots.	K4
CO5	<b>Evaluate</b> simple correlation, spurious correlation, and the coefficient of determination.	K5
CO6	<b>Create</b> summaries of quantitative and qualitative data	K6

