

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI**COURSE PLAN (June - November 2026)****Department : Mathematics****Name/s of the Faculty : Dr. Arul Roselet Meryline S****Course Title : STATISTICS - I****Course Code : 24DS/PC/ST14****Shift : II****COURSE OUTCOMES (COs)**

COs	Description	CL
CO1	define basic concepts of statistics, data types, probability, and random variables	K1
CO2	understand statistical measures, data organization methods, and foundational probability principles	K2
CO3	apply descriptive and inferential statistical methods, including mean, variance, correlation, and probability computations	K3
CO4	analyze the relationships among variables and interpret results using sampling distributions and random variable properties	K4
CO5	evaluate and develop population parameters and hypotheses using estimation techniques and probabilistic reasoning	K5, K6

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 22, 2026 (Day Order 6)	1	1.1 Introduction to Statistics Introduction-Data Collection and Descriptive Statistics- Inferential Statistics and Probability Models	K1-K6	1	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Questioning
Jun 23 – July 1, 2026 (Day Order 1- 6)	1	1.1 Introduction to Statistics Populations and Samples-A Brief History of Statistics 1.2 Organization and Presentation of Data Origin and development of Statistics, Scope, limitation and misuse of statistics. Types of data: primary, secondary, quantitative and qualitative data. Types of Measurements: nominal, ordinal, discrete and continuous data.	K1-K6	5	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Questioning
July 2 – July 8, 2026 (Day Order 1- 6)	1	1.2 Organization and Presentation of Data Presentation of data by tables: construction of frequency distributions for discrete and continuous data, graphical representation of a	K1-K6	5	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Slip Test

		frequency distribution by histogram and frequency polygon, cumulative frequency distributions					
July 9 – 16, 2026 (Day Order 1- 6)	2	2.1 Descriptive statistics Introduction-Describing Data Sets-Frequency Tables and Graphs-Relative Frequency Tables and Graphs- Grouped Data, Histograms, Ogives, and Stem and Leaf Plots Summarizing Data Sets-Sample Mean, Sample Median, and Sample Mode-Sample Variance and Sample Standard Deviation-Sample Percentiles and Box Plots-Chebyshev's Inequality	K1-K6	5	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Questioning
July 17 – 24, 2026 (Day Order 1- 6)	2	2.1 Descriptive statistics Normal Data Sets-Paired Data Sets and the Sample Correlation Coefficient 2.2 Correlation Scatter plot, Karl Pearson coefficient of correlation, Spearman's rank correlation coefficient, multiple and partial correlations (for 3 variates only)	K1-K6	5	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Questioning & Problem Solving

July 25 – 28, 2026 (Day Order 1- 3)	3	3.1 Random variables and expectation Random Variables-Types of Random Variables-Jointly Distributed Random Variables-Independent Random Variables	K1-K6	3	CO1-5	Lecture and Group Discussion Learning by Doing Problems	III Component 1 Presentation of data collection and Analysis -concepts from Unit 1 (20 Marks)
July 29 – Aug 3, 2026	C.A. Test – I (Unit 1 & 2)						
Aug 4 - 6, 2026 (Day Order 4 - 6)	3	3.1 Random variables and expectation Conditional Distributions- Expectation- Properties of the Expected Value- Expected Value of Sums of Random Variables- Variance-Covariance and Variance of Sums of Random Variables-Moment Generating Functions	K1-K6	2	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Questioning & Problem Solving
Aug 7 – 14, 2026 (Day Order 1- 6)	3	3.2 Special random variables The Bernoulli and Binomial Random Variables- Computing the Binomial Distribution	K1-K6	5	CO1-5	Lecture and Group Discussion Learning by Doing Problems	III Component 2 Test Unit 3- section 3.1 (15 marks)

		Function-The Poisson Random Variable-Computing the Poisson Distribution Function-The Hypergeometric Random Variable-The Uniform Random Variable					
Aug 17 - 24, 2026 (Day Order 1- 6)	3	3.2 Special random variables Normal Random Variables-Exponential Random Variables-The Poisson Process-The Gamma Distribution-Distributions Arising from the Normal-The Chi-Square Distribution	K1-K6	5	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Questioning & Problem Solving
Aug 25 – Sep 2, 2026 (Day Order 1- 6)	3 4	3.2 Special random variables The t-Distribution-The F Distribution-The Logistics Distribution 4.1 Distributions of sampling statistics Introduction-The Sample Mean-The Central Limit Theorem-Approximate Distribution of the Sample	K1-K6	5	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Questioning & Problem Solving

		Mean, How Large a Sample Is Needed? -The Sample Variance					
Sep 3 – 11, 2026 (Day Order 1- 6)	4	4.1 Distributions of sampling statistics Sampling Distributions from a Normal Population Distribution of the Sample Mean, Joint Distribution of X and S-Sampling from a Finite Population	K1-K6	5	CO1-5	Lecture and Group Discussion Learning by Doing Problems	Questioning & Problem Solving
	5	5.1 Basics and Elements of Probability Random experiment, sample point and sample space, event, algebra of events. Definition of Probability: classical, empirical and axiomatic approaches to probability, properties of probability					
Sep 15-17, 2026 (Day Order 1 - 3)	4	5.1 Basics and Elements of Probability Theorems on probability, conditional probability and independent events, Laws of total probability	K1-K6	3	CO1-5	Lecture, Group Discussion and Presentations Learning by Doing Problems	Questioning & Problem Solving

Sep 18 –23, 2026	C.A. Test – II (Unit 3 & Unit 4 (4.1))						
Sep 24 - 28, 2026 (Day 4 – 6)	5	5.1 Basics and Elements of Probability Baye's theorem and its applications	K1-K6	2	CO1-5	Lecture, Group Discussion and Presentations Learning by Doing Problems	III Component 3 Test Unit 5 Section 5.1 (15 marks)
Sep 29 – Oct 7, 2026 (Day Order 1 - 6)	4	4.2 Parameter estimation Introduction-Maximum Likelihood Estimators-Interval Estimates-Confidence Interval for a Normal Mean When the Variance is Unknown	K1-K6	5	CO1-5	Lecture, Group Discussion and Presentations Learning by Doing Problems	Questioning & Problem Solving
Oct 8 - 14, 2026 (Day Order 1 - 6)	4	4.2 Parameter estimation Confidence Intervals for the Variance of a Normal Distribution - Estimating the Difference in Means of Two Normal Populations-Approximate Confidence Interval for the Mean of a Bernoulli Random Variable -Confidence Interval of the Mean of the Exponential Distribution-The Bayes Estimator	K1-K6	5	CO1-5	Lecture, Group Discussion and Presentations Learning by Doing Problems	Questioning & Problem Solving

Oct 15 - 21, 2026
(Day Order 1- 4)

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