LESSON PLAN (2025-26)

B.Sc III (Statistics), Semester-V

Paper name: Numerical Methods & Fundamentals of Computers, Applied Statistics

Teacher's name: Dr. Permila

July Week 5
Numerical Methods: Difference Tables, Newton's Interpolation Formulae with Equal and Unequal Intervals. Lagrange's Method of Interpolation.
August Week 1
Numerical Integration, General Quadrature Formula for Equidistant Ordinates. Trapezoidal Rule,
Week 2
Simpson's One-Third and Three-Eight Formula. Basic of Computer: Introduction. Origin, Development, Uses and Limitation of Computers. Types of Computers, Computer Structure.
Week 3
Input-Unit, CPU, Output Unit, Secondary Storage, High Level and Low Level Languages, Compiler and Interpreter.
Week 4
Computer Arithmetic: Floating Point Representation of Numbers, Arithmetic Operations with Normalized Floating Point Numbers. Number Systems- Binary.
Week 5
Decimal, Octal and Hexadecimal Number Systems and their Conversions into each other. Binary Arithmetic's, (Addition, Subtraction, Multiplication & Division).
September Week 1
Flow Charts and Algorithm: Concepts of Flow Chart and Algorithm. Flow Charts and Algorithms for the following: Mean
Week 2
Standard Deviation, Coefficient of Correlation, Straight Line Fitting. Analysis of Data using MS Excel.
Week 3
Index Number: Definition, Problems involved in the Construction of Index Numbers, Calculation of Index Numbers-Simple Aggregate Method, Weighted Aggregates Method.
Week 4
Simple average of Price Relatives, Weighted Average of Price Relatives, Link Relatives, Chain Indices. Value Index Numbers, Price and Quantity Index Numbers, Laspeyre's, Paasche's, Marshall-Edgeworth and Fisher's Index Numbers.
Week 5 / October Week 1
Time and Factor Reversal Tests of Index Numbers, Consumer Price Index Number and Its uses. Base Shifting, Splicing and Deflating of Index Numbers.
Week 2
Time Series Analysis: Definition, Components of Time Series-Trend, Seasonal Variations, Cyclic

Variations, Irregular Component
Week 3 & Week 4
Additive and Multiplicative Models, Determination of Trend-Graphic Method. Semi-Averages Method, Method of Curve fitting by Principle of Least Squares, Growth Curves and their Fitting, Moving Average Method.
Week 5 & November Week 1
Analysis of Seasonal Fluctuations, Construction of Seasonal Indices using Method of Simple Averages, Ratio to Trend Method, Ratio to Moving Average Method and Link Relative Method, Demographic Methods: Sources of Demographic Data-Census, Register.
Week 2
Adhoc Survey, Hospital Records. Measurement of Mortality- Crude Death Rate,Specific Death Rate, Standardized Death Rates. Complete Life Tables and its main Features, Assumptions, Descriptions and Construction of Life Tables, uses of Life Tables.
Week 3
Abridged Life Table using King's Method, Stationary and Stable Population. Measurement of Fertility-Crude Birth Rate, General Fertility Rate, Specific Fertility Rate, Total Fertility Rate. Measurement of Population Growth-Gross Reproduction Rate, Net Reproduction Rate.

LESSON PLAN (2024-25)

B.Sc III (Statistics), Semester-V

Paper name: Numerical Methods & Fundamentals of Computers, Applied Statistics

Teacher's name: Dr. Permila & Dr. Jyoti

July Week 4
Numerical Methods: Difference Tables, Newton's Interpolation Formulae with Equal and Unequal Intervals. Lagrange's Method of Interpolation.
July Week 5 /August Week 1
Numerical Integration, General Quadrature Formula for Equidistant Ordinates. Trapezoidal Rule, Simpson's One-Third and Three-Eight Formula. Basic of Computer: Introduction.
Week 2
Origin, Development, Uses and Limitation of Computers. Types of Computers, Computer Structure.
Week 3
Input-Unit, CPU, Output Unit, Secondary Storage, High Level and Low Level Languages, Compiler and Interpreter.
Week 4
Computer Arithmetic: Floating Point Representation of Numbers, Arithmetic Operations with Normalized Floating Point Numbers. Number Systems- Binary.
Week 5
Decimal, Octal and Hexadecimal Number Systems and their Conversions into each other. Binary Arithmetic's, (Addition, Subtraction, Multiplication & Division).
September Week 1
Flow Charts and Algorithm: Concepts of Flow Chart and Algorithm. Flow Charts and Algorithms for the following: Mean
Week 2
Standard Deviation, Coefficient of Correlation, Straight Line Fitting. Analysis of Data using MS Excel.
Week 3
Index Number: Definition, Problems involved in the Construction of Index Numbers, Calculation of Index Numbers-Simple Aggregate Method, Weighted Aggregates Method.
Week 4
Simple average of Price Relatives, Weighted Average of Price Relatives, Link Relatives, Chain Indices. Value Index Numbers, Price and Quantity Index Numbers, Laspeyre's, Paasche's, Marshall-Edgeworth and Fisher's Index Numbers.
Week 5 / October Week 1
Time and Factor Reversal Tests of Index Numbers, Consumer Price Index Number and Its uses. Base Shifting, Splicing and Deflating of Index Numbers.
Week 2

Time Series Analysis: Definition, Components of Time Series-Trend, Seasonal Variations, Cyclic Variations, Irregular Component
Week 3
Additive and Multiplicative Models, Determination of Trend-Graphic Method. Semi-Averages Method, Method of Curve fitting by Principle of Least Squares, Growth Curves and their Fitting, Moving Average Method.
Week 4
Analysis of Seasonal Fluctuations, Construction of Seasonal Indices using Method of Simple Averages, Ratio to Trend Method
November Week 2
Ratio to Moving Average Method and Link Relative Method, Demographic Methods: Sources of Demographic Data-Census, Register.
Week 3
Adhoc Survey, Hospital Records. Measurement of Mortality- Crude Death Rate,Specific Death Rate, Standardized Death Rates. Complete Life Tables and its main Features, Assumptions, Descriptions and Construction of Life Tables, uses of Life Tables.
Week 4
Abridged Life Table using King's Method, Stationary and Stable Population. Measurement of Fertility-Crude Birth Rate, General Fertility Rate, Specific Fertility Rate, Total Fertility Rate. Measurement of Population Growth-Gross Reproduction Rate, Net Reproduction Rate.

LESSON PLAN (2025-26)

Teacher's name: Dr. Sandeep Kumar
Name of the course: Operation Research
Class: B.sc Math hons 5th sem

July:
Week 5
Definition,scope, methodology and application of OR.Types of OR models
August:
week 1
Concept of optimization.Linear programming: introduction
Week 2
Formulation of a linear programming problem, requirements for an LPP
Week 3
Advantages and limitations of LP, graphical solution: multiple, unbounded and infeasible solutions
Week 4
Principle of simplex method , standard form, basic solution
Week 5& September:
Week 1
Basic feasible solution.computational aspect of simplex method: cases of unique feasible solution
Week 2
No feasible solution, multiple solution and unbounded solution and degeneracy
Week 3
Two Phase and Big M method.Duality in LPP
Week 4
Transportation problem: Methods for finding basic feasible solution of a transportation problem
Week 5 & October:
week 1
Modified distribution method for finding the optimum solution
Week 2
Unbalanced and degenerate transportation problem ,transhipment problem
Week 3 & Week 4
Maximization in a transportation problem.Assignement Problem: Solution by Hungarian method, unbalanced assignment problem
Week 5
Maximization in an assignment problem,Crew assignment and travelling salesman

November:
Week 1
Game Theory: Two person zero sum game ,game with saddle points
Week 2
The rule of dominance: Algebraic, graphical and linear programming methods for solving mixed strategy games
Week 3
Revision

LESSON PLAN (2024-25)

Teacher's name: Dr. Sandeep Kumar

Name of the course: Operation Research

Class: B.sc Math hons 5th sem

July:
Week 5
Definition,scope, methodology and application of OR.Types of OR models
August:
week 1
Concept of optimization.Linear programming: introduction
Week 2
Formulation of a linear programming problem, requirements for an LPP
Week 3
Advantages and limitations of LP, graphical solution: multiple, unbounded and infeasible solutions
Week 4
Principle of simplex method , standard form, basic solution
Week 5& September:
Week 1
Basic feasible solution.computational aspect of simplex method: cases of unique feasible solution
Week 2
No feasible solution, multiple solution and unbounded solution and degeneracy
Week 3
Two Phase and Big M method.Duality in LPP
Week 4
Transportation problem: Methods for finding basic feasible solution of a transportation problem
Week 5 & October:
week 1
Modified distribution method for finding the optimum solution
Week 2
Unbalanced and degenerate transportation problem ,transhipment problem
Week 3 & Week 4
Maximization in a transportation problem.Assignement Problem: Solution by Hungarian method, unbalanced assignment problem
Week 5
Maximization in an assignment problem,Crew assignment and travelling salesman

November:
Week 1
Game Theory: Two person zero sum game ,game with saddle points
Week 2
The rule of dominance: Algebraic, graphical and linear programming methods for solving mixed strategy games
Week 3
Revision

LESSON PLAN (2025-26)
Minor Course for UG Program

Teacher's name: Dr. Permila ,Dr. Sandeep
Name of the course: Introduction to statistics

July, 2025:
Week 3: Statistics: Definition, scope & limitation
Week 4: Concept of statistical data: Quantitative and Qualitative, methods of collection.
August, 2025:
Week 1: Scales of measurements: nominal, ordinal, interval and ratio
Week 2: Presentation: Tabular and Graphical including Histogram and ogives
Week 3: Measure of central Tendency: Mean, Median, Mode
Week 4: Mathematical and positional measure of dispersion with examples
September, 2025:
Week 1: Range, Quartile deviation, mean deviation with examples
Week 2: Coefficient of variation , Moments with examples and exercise
Week 3: Skewness and Kurtosis with examples
Week 4: Independence and Association of Attributes, Independence
October, 2025:
Week 1: Measure of association for 2×2 table, chi-square, Karlpearson
Week 2: Contingency table with ordered category
Week 3: Diwali Vacation
Week 4: Bivariate Data; Definition ,Scatter diagram ,Simple, Partial correlation
November, 2025:
Week 1: Multiple correlation three variables only, Rank correlation examples and exercise
Week 2: Simple linear Regression with examples and problems
Week 3: Revision and extra classes for week students

Lesson Plan

Academic Session 2025-26

Subject: Statistics **Class: B.A/Bsc 3rd sem.**

Name Of Program - Major **Name: Dr. Jyoti**

Week	Month
	JULY
Week 5	Sample vs Complete Enumeration. Designing of sample Surveys.
	AUGUST
Week 1	Sources of errors in sample surveys. Types of Non response errors probability and purposive sampling
Week 2	Simple random sampling with or without Replacement for the Estimation of Mean Total
Week 3	Proportion and Ratio, Determination of sample size for specified precision Stratified sampling : proportional and optimum allocation.
Week 4	Estimation of gain due to stratification
Week 5	Construction of strata and Determination of number of strata.
	SEPTEMBER
Week 1	Ratio estimates, Approximate Variance, Comparison with Mean per unit Estimate.
Week 2	Optimum conditions, Bias of the Ratio Type Estimate. Unbiased Ratio type Estimate due to Hartley and Ross,
Week 3	Ratio estimate in Stratified sampling.
Week 4	Regression estimators(pre-assigned and Estimated from the sampling comparison with the Ratio and Mean per unit Estimates in Stratified Sampling.
	OCTOBER
Week 1	Double sampling (two phase sampling) for Ratio and Regression methods of Estimation. Systematic sampling, Comparison with Sratified and Simple random sampling.
Week 2	Single Stage Cluster Sampling and variance in terms of Inter Cluster Correlations.
Week 3	**Diwali Break**
Week 4	Jessens cost Function and Determination of optimum sampling unit. Sampling with varying probability
Week 5	Sampling with Probability Proportional to Size Lahiri Method of selection unequal probability sampling with replacement and without replacement.
	NOVEMBER
Week 1	Horvitz Thompson Estimator, its Variance and Unbiased estimate of this variance. Two Stage sampling. Estimate of population mean and its variance
Week 2,3,4	Optimum Allocation for fixed cost. Revision and Test

LESSON PLAN (2025-26)
Minor Course for UG Program

Teacher's name: Dr. Sudesh K. Barak
Name of the course: Statistical Inference-25STA403MI01(B.Sc math H)

July, 2025:
Week 4: Definition of Population ,Sample, Parameter, Statistic, Standard error
August, 2025:
Week 1: Definition, Properties and the applications of F-Distribution, χ^2-Distribution,
Week 2: Estimator, Criteria of a Good Estimator, Neyman's Factorization Theorem
Week 3: Methods of Estimation of Parameters by the Method of Moments
Week 4: Least-Square and Maximum Likelihood, Properties of MLE's
September, 2025:
Week 1: Estimation of Parameters Binomial, Poisson & Normal Distributions.
Week 2: Concepts of Statistical Hypothesis, Null and Alternative Hypotheses.
Week 3: Critical Region, Type of Errors, Level of Significance and Power of the Test
Week 4: One and Two tailed test, Large Sample Test
October, 2025:
Week 1: Large Sample Test and Confidence interval for Single Mean
Week 2: Difference of Two Means, Single Proportion, Difference of Proportions
Week 3: Diwali Vacation
Week 4: Standard Deviation and Correlation Coefficient.
November, 2025:
Week 1: Small Sample Test and Confidence Interval for Single Mean
Week 2: Difference of Means and Paired Sample, χ^2-Test for Goodness of fit and Independence of Attributes.
Week 3: F- Test for Equality of Variances, Revision of the syllabus.
Weak4: Central limit theorem, Sampling Distribution: Students t-Distribution

Name of the Assistant/Associate Professor	DR. JYOTI
Class and Section	BA 3rd sem
Subject	Statistics (Minor course)
Paper	Elementary Probability (CODE : 24STA402MI01)
July	
Week 5	Probability: Introduction, Random Experiment, Sample Space, Events and Algebra of Events. Definitions of Probability
August	
Week 1	Classical, Statistical and Axiomatic. Conditional Probability Laws of Addition and Multiplication
Week 2	Independent Events. Examples of probability problems and its revision
Week 3	Theorem of Total Probability, Bayes' Theorem & Its Applications
Week 4	Random Variables: Discrete and Continuous Random Variables
Week 5	Probability Mass Function. Revision and Test
September	
Week1	Probability Density Function and Cumulative Distribution Function
Week 2	Illustrations and Properties of CDF
Week 3	Two Dimensional Random Variables-Joint, Marginal and Conditional Distributions.
Week 4	Mathematical Expectation and Generating Functions: Expectation of Single Random Variables and Its Properties
October	
Week 1	Probability Generating Function
Week 2	Moment Generating Function and Characteristic Function.
Week 3	**Diwali Break**
Week 4	Discrete Probability Distributions: Bernoulli, Binomial, Poisson
Week 5	Geometric Along with Their Properties and Limiting/Approximation Cases.
November	
Week 1	Normal, Exponential Along with Their Properties and Limiting/Approximation Cases
Week 2	Revision and Test