

CLASS ROUTINE - ODD SEMESTER (2024): DEPARTMENT OF STATISTICS, MDKG COLLEGE, DIBRUGARH

TEACHER	CLASS	DAY/TIME	9:00 - 10:00	10:00 - 11:00	11:00 -12:00	12:00 -1:00	1:00 -2:00	2:00 - 3:00	3:00 - 4:00	4:00-5:00
Kalpasree Sharma	B. Sc (SEM I)	Mon	GEC 1 (101)		MIN 1 (101)					Remedial Class
		Tues				MIN 1 (101)				
		Wed					GEC 1 (101)		MIN 1 (101)	
		Thurs			MIN 1 (101)			GEC 1 (101)		
		Fri				GEC 1 (101)				
		Sat		MIN 1 (101)						
	B. Sc (SEM III)	Mon						MIN 3 (101)		Remedial Class
		Tues					GEC 3 (101)		MIN 3 (101)	
		Wed	MIN 3 (101)	GEC 3 (101)						
		Thurs					MIN 3 (101)			
		Fri					GEC 3 (101)			
		Sat				GEC 3 (101)	MIN 3 (101)			

**Kalpasree Sharma – 18 classes/week (MINSTS1 – Basic Statistical Methods, GECSTS1 – Statistical Methods,
MINSTS3 – Statistical Inference, GECSTS3 – Applied Statistics)**

No. of Students in ODD Semester :- 3rd Sem Minor = 1

3rd Sem GEC = 5

B.A/B.SC 1ST SEMESTER (FYUGP) STATISTICS SYLLABUS ALLOTMENT**Title of the Course : Basic Statistical Methods****Course Code : MINSTS1****Nature of the Course : Minor****Total Credits : 04****Distribution of Marks : 80 (End Sem) (60T+20P) + 20 (In-Sem)****Subject Teacher : KALPASREE SHARMA**

UNITS	CONTENTS	L	T	P	Total Hours
1 (12 Marks)	Statistical Methods: Definition and scope of Statistics, concepts of statistical population and sample. Data: quantitative and qualitative, primary and secondary, attributes, variables, scales of measurement nominal, ordinal, interval and ratio. Presentation: tabular and graphical, including histogram and ogives, Categorical data: Attributes and different measures of their association.	08	01	-	09
2 (16 Marks)	Measures of Central Tendency: mathematical and positional. Measures of Dispersion: range, quartile deviation, mean deviation, standard deviation, coefficient of variation, Moments, absolute moments, factorial moments, skewness and kurtosis, Sheppard's corrections.	10	02	-	12
3 (16 Marks)	Bivariate data: Definition, scatter diagram, simple, partial and multiple correlation (3 variables only), rank correlation. Simple linear regression, principle of least squares and fitting of polynomials and exponential curves.	10	02	-	12

4 (16 Marks)	Index Numbers: Definition, construction of index numbers and problems thereof for weighted and unweighted index numbers including Laspeyre's, Paasche's, Edgeworth-Marshall and Fisher's. Chain index numbers, conversion of fixed based to chain based index numbers and vice-versa. Consumer price index numbers (Core and Headline).	10	02	-	12
5 (20 Marks)	List of Practicals 1. Graphical representation of data. 2. Problems based on measures of central tendency. 3. Problems based on measures of dispersion. 4. Problems based on combined mean and variance and coefficient of variation. 5. Problems based on moments, skewness and kurtosis	-	-	15	30
	6. Fitting of polynomials, exponential curves. 7. Karl Pearson correlation coefficient. 8. Correlation coefficient for a bivariate frequency distribution. 9. Lines of regression, angle between lines and estimated values of variables. 10. Spearman rank correlation with and without ties. 11. Partial and multiple correlations. 12. Planes of regression and variances of residuals for given simple correlations. 13. Planes of regression and variances of residuals for raw data. 14. Calculate price and quantity index numbers using simple and weighted average of price relatives. 15. To calculate the Chain Base index numbers. 16. To calculate consumer price index number.				
	TOTAL	38	07	15	75

B.A/B.SC 1ST SEMESTER (FYUGP) STATISTICS SYLLABUS ALLOTMENT

Title of the Course : Statistical Methods

Course Code : GECSTS1

Nature of the Course : Generic Elective

Total Credits : 03

Distribution of Marks : 80 (End Sem) + 20 (In-Sem)

Subject Teacher : KALPASREE SHARMA

UNITS	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Introduction: Definition and scope of Statistics, concepts of statistical population and sample. Data: quantitative and qualitative, primary and secondary, attributes, variables, scales of measurement - nominal, ordinal, interval and ratio. Presentation: tabular and graphic, including histogram and ogives.	06	01	-	08
2 (15 Marks)	Measures of Central Tendency: mathematical and positional. Measures of Dispersion: range, quartile deviation, mean deviation, standard deviation, coefficient of variation, moments, skewness and kurtosis.	07	01	-	08
3 (18 Marks)	Bivariate data: Definition, scatter diagram, simple, partial and multiple correlation (3 variables only), rank correlation. Simple linear regression, principle of least squares and fitting of polynomials and exponential curves.	09	01	-	10

4 (12 Marks)	Categorical data: Attributes and different measures of their association. Contingency table.	05	01	-	06
5 (20Marks)	Co-requisites (with simple numerical examples) 1. Graphical representation of data 2. Problems based on measures of central tendency 3. Problems based on measures of dispersion 4. Problems based on combined mean and variance and coefficient of variation 5. Problems based on moments, skewness and kurtosis 6. Fitting of polynomials, exponential curves 7. Karl Pearson correlation coefficient 8. Partial and multiple correlations 9. Spearman rank correlation with and without ties. 10. Correlation coefficient for a bivariate frequency distribution 11. Lines of regression, angle between lines and estimated values of variables.	15	-	-	15
	Total	41	04	-	45

Where,

L: Lectures

T: Tutorials

P: Practicals

B.A/B.SC 3RD SEMESTER (FYUGP) STATISTICS SYLLABUS ALLOTMENT

Title of the Course : Statistical Inference

Course Code : MINSTS3

Nature of the Course : Minor

Total Credits : 04

Distribution of Marks : 80 (End Sem) (60T+20P) + 20 (In-Sem)

Subject Teacher : KALPASREE SHARMA

UNITS	CONTENTS	L	T	P	Total Hours
1 (16 Marks)	Useful sampling distributions: Chi-square, t and F. Estimation: Concepts of estimation, unbiasedness, consistency and efficiency. Sufficiency. Factorization theorem. Complete statistic, Minimum variance unbiased estimator (MVUE).	10	02	-	12
2 (12 Marks)	Methods of Estimation: Method of moments, method of maximum likelihood estimation, method of minimum Chi-square, basic idea of Bayes estimators.	08	01	-	09
3 (16 Marks)	Critical region, level of significance, size and power, best critical region, most powerful test, uniformly most powerful test, Neyman Pearson Lemma (statement and applications to construct most powerful test). Likelihood ratio test, properties of likelihood ratio tests (without proof).	10	02	-	12

4 (16 Marks)	Sequential Analysis: Sequential probability ratio test (SPRT) for simple null vs simple alternative hypotheses. Fundamental relations among α , β , A and B, determination of A and B in practice. Wald's fundamental identity (sans proof) and the derivation of operating characteristics (OC) and average sample number (ASN) functions, examples based on normal, Poisson, binomial and exponential distributions.	10	02	-	12
5 (20 Marks)	<p>List of Practicals</p> <ol style="list-style-type: none"> 1. Maximum likelihood estimators for the binomial, Poisson, exponential, normal distributions. 2. Estimation by method of moments for the binomial, Poisson, exponential, normal distributions. 3. Comparison of method of moments and maximum likelihood estimators for the continuous uniform distribution. 4. Computation of Type- I and Type-II errors. 5. Application of NP lemma: construction of MP and UMP tests. 6. Drawing power curves for the tests of equality of normal mean (s). 7. Likelihood ratio test: Single-sample and two-sample testing problems. 8. Sequential testing procedure: Construction of OC, ASN function and drawing of OC, ASN curve. 	-	-	15	30
Total		38	07	15	75

Where,

L: Lectures

T: Tutorials

P: Practicals

B.A/B.SC 3RD SEMESTER (FYUGP) STATISTICS SYLLABUS ALLOTMENT

Title of the Course : Applied Statistics
Course Code : GECSTS3
Nature of the Course : Generic Elective
Total Credits : 03
Distribution of Marks : 80 (End Sem) + 20 (In-Sem)

Subject Teacher : KALPASREE SHARMA

UNITS	CONTENTS	L	T	P	Total Hours
1 (18 Marks)	Index numbers: Definition, Criteria for a good index number, different types of index numbers. Construction of index numbers of prices and quantities, consumer price index number. Uses and limitations of index numbers. Base shifting, Splicing and deflating of Index numbers.	06	01	-	07
2 (20 Marks)	Statistical Quality Control: Importance of statistical methods in industrial research and practice. Causes of variations in quality: chance and assignable. General theory of control charts, process & product control, Control charts for variables: X- bar and R-charts. Control charts for attributes: p and c-charts.	09	02	-	12

3 (22 Marks)	Demographic Methods: Introduction, measurement of population, rates and ratios of vital events. Measurement of mortality: CDR, SDR (w.r.t. Age and sex), IMR, Standardized death rates. Life (mortality) tables: definition of its main functions and uses. Measurement of fertility and reproduction: CBR, GFR, and TFR. Measurement of population growth: GRR, NRR	10	02	-	12
4 (20 Marks)	Co-requisites (with simple numerical examples) 1. Construction of price and quantity index numbers by Laspeyre's formula, Paasche's formula, Marshall- Edgeworth's formula, Fisher's Formula. Comparison and interpretation. 2. Construction of wholesale price index number, fixed base index number and consumer price index number with interpretation 3. Construction and interpretation of X bar & R-chart 4. Construction and interpretation p-chart (fixed sample size) and c-chart 5. Computation of measures of mortality 6. Completion of life table 7. Computation of measures of fertility and population growth	15	-	-	15
Total		40	05	-	45

Where,

L: Lectures

T: Tutorials

P: Practicals