

Unitization of Syllabus (CBCS)

Department of Statistics

Nowgong Girls' College

B.A. 1st Semester

Paper Title and Code: Statistical Methods (STA-HG-1016)

Unit	Topic	Name of the Teacher	Methodology
Unit I	Statistical Data Introduction: Definition and scope of Statistics, concepts of statistical population and sample. Data: Univariate Data: quantitative and qualitative, attributes, variables, scales of measurement - nominal, ordinal, interval and ratio. Presentation: tabular and graphic, including histogram and ogives.	Mrs. Kalpana Bhattacharjya	Lecture, notes
Unit II	Measures of Central Tendency Measures of Central Tendency: mathematical and positional. Measures of Dispersion: range, quartile deviation, mean deviation, standard deviation, coefficient of variation, moments, skewness and kurtosis.	Mrs. Kalpana Bhattacharjya	Lecture, notes, power point
Unit III	Calculus of Finite Difference Finite Difference: Definition, Operators Δ & E , their properties, Difference	Dr. Tripakshi Borthakur	Lecture, notes

	<p>table, missing terms, Interpolation: Definition, Newton's Forward and Backward interpolation formula. Divided Difference (DD): Definition, DD table, Newton's DD formula. Lagrange's interpolation formula. Numerical Integration: Introduction, General quadrature formula, Trapezoidal, Simpson's 1/3rd & 3/8th rules, Newton-Raphson method.</p>		
Unit IV	<p>Bivariate Data Bivariate data: Definition, scatter diagram, simple, partial and multiple correlation (3 variables only), rank correlation. Simple linear regression, principle of least squares.</p>	Dr. Tripakshi Borthakur	Lecture, notes,assignment
Unit V	<p>Theory of Attributes Theory of attributes, consistency of data, independence and association of attributes, measures of association and contingency.</p>	Dr. Tripakshi Borthakur	Lecture, notes

Unitization of Syllabus (CBCS)

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Nowgong Girls' College

B.A. 2nd Semester

Paper Title and Code: Introductory Probability (STA-HG-2016)

Unit	Topic	Name of the Teacher	Methodology
Unit I	Probability Probability: Introduction, random experiments, sample space, events and algebra of events. Definitions of Probability – classical, statistical, and axiomatic. Conditional Probability, laws of addition and multiplication, independent events, theorem of total probability, Bayes' theorem and its applications.	Mrs. Kalpana Bhattacharjya	Lecture, notes
Unit II	Random Variables Random Variables: Discrete and continuous random variables, p.m.f., p.d.f., c.d.f. Illustrations of random variables and its	Mrs. Kalpana Bhattacharjya	Lecture, notes, powerpoint

	properties. Expectation, variance, moments and moment generating function.		
Unit III	Convergence in Probability Idea of convergence in probability, Chebyshev's inequality, weak law of large numbers, De-Moivre Laplace and Lindeberg-Levy Central Limit Theorem (C.L.T.) (statement only without proof).	Dr. Tripakshi Borthakur	Lecture, notes,quiz
Unit IV	Standard Distributions Standard probability distributions: Binomial, Poisson, geometric, negative binomial, hypergeometric, uniform, normal, exponential, beta, gamma.	Dr. Tripakshi Borthakur	Lecture, notes,assignment

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Nowgong Girls' College

B.A. 3rd Semester

Paper Title and Code: Basic Statistical Inference (STA-HG-3016)

Unit	Topic	Name of the Teacher
Unit I	Tests of Hypothesis Estimation of population mean, confidence intervals for the parameters of a normal distribution (one sample). The basic idea of significance test. Null and alternative hypothesis. Type I & Type II errors, level of significance, concept of p-value. Tests of hypotheses for the parameters of a normal distribution (one sample), Non-parametric tests: Sign test for median, Sign test for symmetry, Wilcoxon two-sample test.	Dr. Tripakshi Borthakur
Unit II	Categorical Data Analysis Categorical data: Tests of proportions, tests of association and goodness-of-fit using Chi- square test, Yates' correction.	Dr. Tripakshi Borthakur
Unit III	Analysis of Variance Analysis of variance, one-way and two-way classification. Brief exposure of three basic principles of design of experiments, treatment, plot and block. Analysis of completely randomized design, randomized complete block design. Bioassay.	Mrs. Kalpana Bhattacharjya

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B.A. 4th Semester

Paper Title and Code: Applied Statistics (STA-HG-4016)

Unit	Topic	Name of the Teacher
Unit I	Time Series Economic Time Series: Components of time series, Decomposition of time series- Additive and multiplicative model with their merits and demerits, Illustrations of time series. Measurement of trend by method of free-hand curve, method of semi-averages and method of leastsquares (linear, quadratic and modified exponential). Measurement of seasonal variations by method of ratio to trend.	Mrs. Kalpana Bhattacharjya
Unit II	Index Numbers 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.	Mrs. Kalpana Bhattacharjya
Unit III	Statistical Quality Control Statistical Quality Control: Importance of statistical methods in industrial research and practice. Determination of tolerance limits. 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	Dr. Tripakshi Borthakur
Unit IV	Demography Demographic Methods: Introduction, measurement of population, rates and	Dr. Tripakshi Borthakur

	<p>ratios of vital events. Measurement of mortality: CDR, SDR (w.r.t. Age and sex), IMR, Standardized death rates.</p> <p>Life (mortality) tables: definition of its main functions and uses.</p> <p>Measurement of fertility and reproduction: CBR, GFR, and TFR.</p> <p>Measurement of population growth: GRR, NRR.</p>	
Unit V	<p>Demand Analysis</p> <p>Demand Analysis: Theory of consumption and demand, demand function, elasticity of demand, determination of elasticity of demand by family budget method, Lorenz curve and Gini's coefficient, Engel's law and Engel's curve, Pareto's law of income distribution.</p>	Dr. Tripakshi Borthakur