

**Liberal College
Department of Statistics
For B.SC./B.A. Programs**

COURSE OUTCOME

SEMESTER - I

COURSE CODE: STA: 101

CREDITS: THEORY- 06, PRACTICAL-01

THEORIES-90 LECTURES

After completion of the course, the student is able to understand:

- CO1. Ability to design data collection plans and basic tools of descriptive statistics.
- CO2. Analysis of statistical data graphically.
- CO3. Analysis of statistical data using measures of central tendency, dispersion and location.
- CO4. The details about moments.
- CO5. The details of skewness and kurtosis.
- CO6. Calculation of probabilities using conditional probability rule of Boole's inequality and Baye's Theorem.
- CO7. The depth applications of addition and multiplication theorems.

SEMESTER - II

COURSE CODE: STA: 202

CREDITS: THEORY- 06, PRACTICAL-01

THEORIES-90 LECTURES

On completion of this course, the students are able to understand the following topics:

- CO1: The random number and its different types.
- CO2: Ability to distinguish between random and non-random experiments.
- CO3: Concept of discrete and continuous random variables and their probability distributions including moments.
- CO4: Details of correlation, regression analysis and curve fitting.
- CO5: Calculation and interpretation the correlation between two variables.
- CO6: The mathematical skills of the students in the areas of numerical methods.
- CO7: Applications of various interpolation methods and finite different concepts.
- CO8: To Work numerically on the ordinary differential equations using different methods through the different methods through the theory of finite differences.

SEMESTER - III

COURSE CODE: STA: 303

CREDITS: THEORY- 06, PRACTICAL-01

THEORIES-90 LECTURES

Students will acquire the knowledge of:

- CO1: Understanding the important of various discrete and continuous distributions.
- CO2: Keen knowledge about the difference between census and sample survey.
- CO3: The Basic knowledge of complete enumeration, sample and sampling techniques.
- CO4: The techniques of selecting a random sample.
- CO5: The consistency of data as well as its condition for consistency.
- CO6: To analyze the concepts of independence and its association of two attributes.
- CO7: The Demonstration of Demography.
- CO8: The construction and implication of complete life table.
- CO9: The measurement of mortality rates, fertility rates and reproduction rate.
- C10: Fitting of logistic curve, derivation and by using Pearl and Reed method and its use in population projection.

SEMESTER - IV

COURSE CODE: STA: 404

CREDITS: THEORY- 06, PRACTICAL-01

THEORIES-90 LECTURES

After completion of this course the students can:

- CO1: Learn the different kinds of sampling distribution.
- CO2: Be able to know the different kinds of hypothesis and level of significance.
- CO3: Understand the type of I and II errors.
- CO4: Calculate a p-value, size of a test power and power function of a test.
- CO5: Specification of the large sample test.
- CO6: Understand the time series data and its applications.
- CO7: Fitting of trend by graphical, semi-averages, principle of least square and moving averages method.
- CO8: Identify situations where one-way ANOVA is appropriate and the degrees of freedom associated with each sum of squares and lastly interpret an ANNOVA table.
- CO9: Learn the different kinds of design of experiments.
- CO10: Understand the primary purposes of an index number.
- CO11: To discuss the different kinds of index numbers.
- CO12: Learn the construction of wholesale and cost of living index number.

SEMESTER - V

COURSE CODE: STA: 505

CREDITS: THEORY- 05, PRACTICAL-01

THEORIES-100 LECTURES

After completion of the course, the student is able to

- CO1: understand about sets, type of sets and its elementary properties, field and a-field, measurement functions and measure space.
- CO2: Understand basic things of sequences like convergence and testing if convergence by using different criteria as comparison, Cauchy and Raabe's etc.
- CO3: understand about determinant and Matrices and their properties and different types of matrices.
- CO4: understand about computer and its generation, uses types of computer, integral parts, how to calculate in M.S. Excel sheet.
- CO5: understand how statement functions, subroutines and other function work.

SEMESTER - V

COURSE CODE: STA: 506

CREDITS: THEORY- 05,

Approximately Lectures 100.

After completion of the course, the student will be able to:

- CO1: understand Normal distribution as a limiting case of binomial distribution, joint prob. Mass and density functions, joint, marginal and conditional distributions.
- CO2: understand Minimum variance estimator, calculate and interpret confidence intervals for maximum likelihood parameter estimates.
- CO3: understand the procedure for planning experiments so that the data obtained can be analyzed to yield valid and objective conclusions and also selecting the process factors for the study.
- CO4: understand calculate and interpret the correlation between two variables, determine whether the correlation is significant, the process of constructing a mathematical function.
- CO5: understand about the calculating the sample variance and unbiased estimator, how is that related to this topic of sample proportion.

SEMESTER -V

COURSE CODE: STA: 607

PRACTICAL: 100 MARKS

SEMESTER - VI

COURSE CODE: STA: 608

CREDITS: THEORY- 05,

THEORIES-100 LECTURES

After completion of this course the students may be understand:

- CO1: The detail of the motion of parametric model and point estimation
- CO2: The demonstration about the plausibility of pre-specified ideas about the parameters of the model by examining the area of hypothesis testing.
- CO3: The detail and demonstrate the use of non-parametric statistical methods.
- CO4: The role of quality control in production and service operations.
- CO5: The tools of 3-sigma control limits
- CO6: The process control, product control and operation about sampling plan.
- CO7: The objectives of seasonal variation and cyclic movements.
- CO8: The Fitting of spencer's 15 point and 21-point formulae.

SEMESTER -VI

COURSE CODE: STA: 609

CREDITS: THEORY- 05, PRACTICAL-01

THEORIES: Approximately 100 LECTURES

After completion of the course, the student can understand:

- CO1: The method of approximation, reversion of series method, Weddle's rule, central difference, Sterling's formulae etc.
- CO2: The derivations of finite difference interpolation formulae such as Laplace-Everett, Newton's Cots, Euler-Maclaurin's Summation and Sterling's formula for n factorial.
- CO3: To Formulate and solve problems as networks and graphs develop linear programming model of shortest path, maximum flow minimal spanning tree, critical path, minimum cost, flow and transshipment. Solve the problems using special solution algorithms.
- CO4: How to evaluate and apply statistical measurement, Principles to their area of.
- CO5: The knowledge on the various objectives, failures and interferences, describe the concept of statistical averages.

SEMESTER -VI

COURSE CODE: STA: 610

PRACTICAL: 100 MARKS

PROGRAM SPECIFIC OUTCOME OF STATISTICS:

The students at the end of the B.A. or B. Sc. statistics Program can become a

- 1 Bank Manager
- 2 Business Manager
- 3 Administrator
- 4 Statistician
- 5 Content Analyst
- 6 Statistic Trainer
- 7 Data Scientist
- 8 Consultant
- 9 Biostatistician
- 10 Indian Statistical Officer