1. **An introduction to Statistics**

   Definitions of statistics, Role of statistics in biology, History of statistics, Limitation of Statistics, Terminology used in statistics

2. **Data Collection**

   Primary and secondary data, Steps in data collection, Methods of data collection, sampling

3. **Sampling**

   Census and sample survey, probability sampling methods, non-probability sampling methods

4. **Descriptive Statistics**

   Presentation of data, Measures of central tendency, Measures of dispersion, Measures of association

5. **Presentation of data**

   Tables, Graphs

6. **Introduction to random variables and probability concepts**

   Random variables, Concept of probability, Sample space and events, Some elementary probability rules, Conditional probability and independence, Bayes' theorem

7. **Probability Distributions - Discrete probability distributions**

   Binomial distribution, Poisson distribution

8. **Probability Distributions - Continuous probability distributions**

   Uniform distribution, Normal distribution, Exponentional distribution

9. **Sampling Distributions**

   Distribution of the sample mean, Distribution of the sample proportion

10. **Estimation**

    Point estimators, Confidence intervals for population mean of large and small samples, Confidence interval for population proportion.

11. **Hypothesis Testing**

    The null and alternative hypothesis, Type I and Type II errors, one tailed and two tailed tests, p value, Significance level

12. **Statistical inferences based on one sample and two samples**

Hypothesis test about population mean and population proportion, Comparing two population means

13. **Simple Linear Regression**

Simple linear regression model, Least squares point estimates of regression parameters, Model assumptions, Inferences about model parameters, R^2 value