

ज्ञान.विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार --- शिक्षणमहर्षी डॉ. बापूजी साळुंखे  
Shri Swami Vivekanand Shikshan Sanstha, Kolhapur

**Lal Bahadur Shastri College of Arts, Science And Commerce, Satara**

**Department of Statistics**

Course Outcomes

**B. Sc. Part – I Semester – I – Statistics – I (Descriptive Statistics – I)**

**Course Outcomes:** The students will acquire knowledge of

- i. meaning and scope of Statistics, various statistical organizations,
- ii. data and types of data, various data presenting methods,
- iii. population, sample and various methods of sampling,
- iv. various measures of central tendencies and dispersion,
- v. moments, skewness and kurtosis.

**B. Sc. Part – I Semester – I – Statistics – II (Elementary Probability Theory)**

**Course outcomes:** Students will be able to:

- i. distinguish between random and non-random experiments
- ii. acquire knowledge of concepts of probability
- iii. use the basic probability rules, including additive and multiplicative laws
- iv. understand concept of conditional probability and independence of events,
- v. understand concept of univariate random variable and its probability distributions
- vi. acquire knowledge of mathematical expectation of univariate random variable

**B. Sc. Part – I Semester – II – Statistics – III (Descriptive Statistics – II)**

**Course Outcomes:** Students will acquire knowledge of:

- i. correlation coefficient and interpret its value,
- ii. regression coefficients, interpret its value and use in regression analysis,
- iii. qualitative data including concept of independence and association between two attributes
- iv. vital statistics and concept of mortality and fertility and growth rates.



**B. Sc. Part – I Semester – II – Statistics – IV (Discrete Probability Distributions)**

**Course Outcome:** Student will be able to acquire knowledge of;

- i. bivariate discrete distributions, independence of bivariate r.v.s., Mathematical expectation of bivariate discrete random variable. 11
- ii. one point distribution, two point distribution, Bernoulli distribution.
- iii. Uniform distribution, Binomial distribution, Hypergeometric distribution.
- iv. Poisson distribution, Geometric distribution and Negative binomial distribution.

**B. Sc. Part-II: Semester III Subject: Statistics -V : Probability Distributions-I**

**Course Outcomes:**

- i) bivariate discrete distributions with real life situations.
- ii) continuous random variable and find the various measures, probabilities using its probability distribution.
- iii) transformation of univariate continuous random variable.
- iv) some standard continuous probability distributions with real life situations.
- v) the relations among the different distributions.

**B. Sc. Part-II: Semester III Subject: Statistics -VI : Statistical Methods-I**

**Course Outcomes:** The students will acquire knowledge of

- i) obtaining multiple linear regression equations and their applications.
- ii) the concept of multiple correlations, partial correlation and their computations.
- iii) need, construction and utility of various index numbers.
- iv) the concepts related to national income and different methods of estimation of national income.

**B. Sc. Part-II: Semester IV Subject: Statistics -VII : Probability Distributions-II**

**Course Outcomes:** The students will acquire knowledge of

- i) some standard continuous probability distributions with real life situations.
- ii) finding the various measures of continuous random variable and probabilities by using its probability distributions.
- iii) the relationships among different distributions.
- iv) continuous bivariate r.v.s. and probability distributions of their transformations.
- v) concept of sampling distribution of a statistic.



vi) some sampling distributions of a statistic : Normal, Chi-Square, t and F distributions with their applications and interrelations.

**B. Sc. Part-II: Semester IV Subject: Statistics - VIII : Statistical Methods-II**

**Course Outcomes:** The students will acquire knowledge of

- i) the concept and use of time series analysis.
- ii) the meaning, purpose and use of Statistical Quality Control, construction and working of control charts for variables and attributes.
- iii) applying the appropriate small sample tests and large sample tests in various situations.

**B. Sc. Part-III Semester V Subject – Statistics - IX : Probability Distributions**

**Course Outcomes:** The students will acquire

- a) knowledge of important univariate distributions such as Laplace, Cauchy, Lognormal, Weibull, Logistic, Pareto, Power Series Distribution.
- b) knowledge of Multinomial and Bivariate Normal Distribution.
- c) knowledge of Truncated Distributions.
- d) information of various measures of these probability distributions.
- e) acumen to apply standard continuous probability distributions to different situations.

**B. Sc. Part-III Semester V Subject – Statistics - X : Statistical Inference-I**

**Course Outcomes:** The students will acquire

- a) knowledge about important inferential aspect of point estimation.
- b) concept of random sample from a distribution, sampling distribution of a statistic, standard error of important estimates such as mean and proportions.
- c) knowledge of various important properties of estimator.
- d) knowledge about inference of parameters of standard discrete and continuous distributions.
- e) concept of Fisher information and CR inequality.
- f) knowledge of different methods of estimation.



### **B. Sc. Part-III Semester V Subject – Statistics - XI : Design of Experiments**

**Course Outcomes:** The students will acquire

- a) knowledge of basic terms used in design of experiments.
- b) concept of one-way and two-way analysis of variance.
- c) knowledge of various designs of experiments such as CRD, RBD, LSD and factorial experiments.
- d) knowledge of using an appropriate experimental design to analyze the experimental data

### **B. Sc. Part-III Semester V Subject – Statistics - XII : R-Programming and Quality Management**

**Course outcomes:** The students will acquire

- a) importance of R- programming
- b) knowledge of identifiers and operators used in R.
- c) knowledge of conditional statements and Loops used in R.
- d) knowledge of quality tools used in Quality management. 13
- e) knowledge of process and product control used in Quality management.

### **B. Sc. Part-III Semester VI Subject – Statistics - XIII : Probability Theory and Applications**

**Course Outcomes:** The students will acquire

- a) knowledge about order statistics and associated distributions
- b) concept of convergence and Chebychev's inequality and its uses
- c) concept of law large numbers and central limit theorem and its uses.
- d) knowledge of terms involved in reliability theory as well as concepts and measures.

### **B. Sc. Part-III Semester VI Subject – Statistics - XIV : Statistical Inference-II**

**Course Outcomes:** The students will acquire

- a) concept of interval estimation.
- b) knowledge of interval estimation of mean, variance and population proportion.
- c) knowledge of important aspect of test of hypothesis and associated concept.
- d) concept about parametric and non-parametric methods.
- e) Knowledge of some important parametric as well as non-parametric tests



**B. Sc. Part-III Semester V Subject – Statistics - IX : Sampling Theory.**

**Course Outcomes:** The students shall get

- a) basic knowledge of complete enumeration and sample, sampling frame sampling distribution, sampling and non-sampling errors, principle steps in sample surveys, sample size determination, limitations of sampling etc.
- b) concept of various sampling methods such as simple random sampling, stratified random sampling, systematic sampling and cluster sampling.
- c) an idea of conducting sample surveys and selecting appropriate sampling techniques.
- d) knowledge of comparing various sampling techniques.
- e) knowledge of ratio and regression estimators

**B. Sc. Part-III Semester V Subject – Statistics – XVI : Operations Research**

**Course Outcomes:** The students will acquire

- a) Concept of Linear programming problem.
- b) Knowledge of solving LPP by graphical and Simplex method.
- c) Knowledge of Transportation, Assignment and Sequencing problems.
- d) Concept of queuing theory.
- e) Knowledge of simulation technique and Monte Carlo technique of simulation.



  
**Head**  
**Department of Statistics**  
**Lal Bahadur Shastri College of**  
**Arts, Science & Commerce, Satara**