

Shivaji University, Kolhapur
Syllabus of B. Com. (SEM – III)
(To be introduced from June, 2019)

BUSINESS STATISTICS (PAPER-I) (Draft Syllabus)

Credits-4

Course Outcomes

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

1. Explain the scope of statistics in business, perform classification and tabulation, and represent the data by means of simple diagrams and graphs.
2. Explain and apply sampling techniques in real life.
3. Summarize data by means of measures of central tendency and dispersion.
4. Explain the merits and demerits of various measures of central tendency and dispersion.
5. Perform analysis of bivariate data using simple correlation and simple linear regression.

Unit 1: Introduction to Statistics

(15)

- 1.1 Meaning of Statistics, Scope of Statistics in business.
- 1.2 Primary and secondary data, Discrete and continuous variables, Classification and its basis, Frequency and frequency distribution, Tabulation.
- 1.3 Diagrammatic representation: pie-chart, simple bar diagram, Graphical representation: histogram, ogive curves, Numerical problems.
- 1.4 Sampling: Definitions of population, sample, sampling, and census, Principle steps in sample survey, Advantages of sampling over census, Methods of sampling: simple random sampling (with and without replacement), stratified random sampling.

Unit 2: Measures of Central Tendency

(15)

- 2.1 Concept of central tendency, Requirements of a good average.
- 2.2 Arithmetic mean (A. M.): Definition, Properties of A. M. (without proof), Combined A. M., Merits and demerits, Numerical problems.
- 2.3 Median and quartiles: Definitions, Merits and demerits of median, Numerical problems.
- 2.4 Mode: Definition, Merits and demerits, Empirical relation among mean, median, and mode, Numerical problems.

Unit 3: Measures of Dispersion

(15)

- 3.1 Concept of dispersion, Requirements of a good measure of dispersion, Absolute and relative measures of dispersion.
- 3.2 Range, Coefficient of range, Merits and demerits of range, Numerical problems.
- 3.3 Quartile deviation (Q. D.), Coefficient of Q. D., Merits and demerits of Q. D., Numerical problems.
- 3.4 Standard deviation (S. D.), Coefficient of S. D., Coefficient of variation, Variance, Merits and demerits of S. D., Numerical problems.

Unit-4: Analysis of Bivariate Data: Correlation and Regression**(15)**

- 4.1 Concept of correlation, Types of correlation.
- 4.2 Methods of studying correlation: Scatter plot, Karl Pearson's correlation coefficient (r), Interpretation of r (with special cases $r = -1, 0,$ and 1), Spearman's Rank correlation coefficient (R), Numerical problems on computation of r and R (with and without ties) for ungrouped data.
- 4.3 Concept of regression.
- 4.4 Lines of regression, regression coefficients, relation between correlation coefficients and regression coefficient, Numerical problems on ungrouped data.

Reference Books:

1. Gupta S. P. (2018) *Statistical methods*, Sultan Chand and Sons.
2. Gupta C. B. and Gupta Vijay (2004) *An Introduction to Statistical Methods*, Vikas Publishing House Pvt Limited.
3. Desai S. S.(2017) *Business Statistics*, Jay-Gauri.
4. Kumbhojkar G. V. (2017) *Business Statistics*, Phadke Prakashan.
5. Gupta S. C. (2019) *Fundamentals of Statistics*, Himalaya Publishing House Pvt. Ltd.

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Syllabus of B. Com. (SEM – IV)
(To be introduced from June, 2019)

BUSINESS STATISTICS (PAPER-II)

Credits-4

Course Outcomes

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

1. Compute unconditional and conditional probabilities and apply laws of probabilities.
2. Identify the applications of Binomial and normal distributions.
3. Measure trend and seasonal variations in time series data.
4. Compute and interpret simple and weighted index numbers.
5. Construct and apply variable and attribute control charts.

Unit 1: Probability and Probability Distributions (15)

- 1.1 Definitions of random experiment, sample space, event, equally likely events, mutually exclusive events, independent events, Classical definition of probability.
- 1.2 Definition of conditional probability, Addition and multiplication laws of probability (without proof), Numerical problems (without use of permutation and combination).
- 1.3 Binomial distribution: Probability mass function, Mean and variance (without proof), Simple numerical problems to find probability and parameters.
- 1.4 Normal distribution: Probability density function, Mean and variance (without proof), Properties of normal curve, Standard normal distribution, numerical problems to find probabilities for given area under standard normal curve.

Unit 2: Time Series Analysis (15)

- 2.1 Definition and uses of time series.
- 2.2 Components of time series.
- 2.3 Methods of measuring trend: method of semi-averages, method of moving averages, and method of least squares, Numerical problems.
- 2.4 Measurement of seasonal variations using simple average method, Numerical problems.

Unit 3: Index Numbers (15)

- 3.1 Need, meaning, and uses of index numbers, Applications of index numbers in share market, Price, quantity, and value index numbers.
- 3.2 Simple index numbers by simple aggregate method and simple average of relatives method (using A. M.), Numerical problems.
- 3.3 Weighted index numbers by Laspeyre's, Paasche's, and Fisher's formulae, Numerical problems.
- 3.4 Problems involved in construction of index numbers.

Unit 4: Statistical Quality Control**(15)**

- 4.1 Concept of statistical quality control (SQC), Advantages of SQC, Types of variability: chance cause variability and assignable cause variability.
- 4.2 Shewhart control chart and its construction.
- 4.3 Variable control charts: mean (\bar{X}) and range (R) charts, Numerical problems.
- 4.4 Attributes control charts: control chart for number of defectives (np -chart) for fixed sample size and control chart for number of defects per unit (c -chart), Numerical problems.

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1. Gupta S. P. (2018) *Statistical methods*, Sultan Chand and Sons.
2. Gupta C. B. and Gupta Vijay (2004) *An Introduction to Statistical Methods*, Vikas Publishing House Pvt Limited.
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4. Kumbhojkar G. V. (2017) *Business Statistics*, Phadke Prakashan.
5. Gupta S. C. (2019) *Fundamentals of Statistics*, Himalaya Publishing House Pvt. Ltd.