



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Social Sciences, Humanities and Arts
Choice Based Credit System (CBCS) in Light of NEP-2020
B.A. Economics
Semester III (2023-2026)

| COURSE CODE | CATEGORY | COURSE NAME | TEACHING & EVALUATION SCHEME | | | | | | | | |
|-------------|----------|------------------------------|------------------------------|---------------|----------------------|-------------------------|----------------------|---|---|---|---------|
| | | | THEORY | | | PRACTICAL | | L | T | P | CREDITS |
| | | | END SEM University Exam | Two Term Exam | Teachers Assessment* | END SEM University Exam | Teachers Assessment* | | | | |
| VUECO101 | SEC | Basic Inferential Statistics | 00 | 00 | 00 | 60 | 40 | 0 | 2 | 4 | 4 |

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit.

***Teacher Assessment** shall be based on following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives:

- CEO1: To develop in- depth understanding of basic statistical concepts.
- CEO2: To develop understanding of probability theory.
- CEO3: To make the students understand the concepts of statistical distributions.
- CEO4: To demonstrate the working of continuous statistical distributions.
- CEO5: To make the students understand the improprieties of statistics.

Course Outcomes:

Students shall be able to:

- CO1: Predict the major characteristics of basic statistical concepts.
- CO2: Illustrate the implications of probability.
- CO3: Explain various features of probability distributions.
- CO4: Summarize the nature of continuous probability distributions.
- CO5: Critically examine the improprieties of statistics.

Contents

UNIT I: Basic Concepts

Population, Variables, Sample, Parameter, Statistic vs. Statistics, Standard error. Law of Large Numbers, Central Limit Theorem (statements only).

UNIT II: Theory of Probability

Set Theory, Definition of Probability, Conditional Probability and its Properties, Probability Laws: Addition, and Multiplication, Theorem of Total Probability.

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UNIT III: Probability Distributions I

Random Variable, Distributions: Discrete, Continuous and Theoretical, Mean and Variance of a Random Variable, Binomial Distribution.

UNIT IV: Probability Distributions II

Normal Distribution: Standard Normal Curve, Degrees of Freedom, Chi-Square Distribution, Student's *t*-Distribution, the F Distribution.

UNIT V: Improperities in Statistics

Bias, Omission of Important Factor, Carelessness, Non-sequitur, Non-Comparable Data, Confusion of Association and Causation, Insufficient Data, Poorly Designed Experiment.

Suggested Readings:

1. Gupta, S. P., Gupta, M. P. (2021). *Business Statistics*. New Delhi: Sultan Chand & Sons
2. Shukla, S.S., Sahay, S. P. (2019). *Statistical Analysis*. Agra: Sahitya Bhawan Publications
3. Gupta, S. P. (2019). *Statistical Methods*. New Delhi: Sultan Chand & Sons

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