

GUJARAT UNIVERSITY
NEP-2020
B. COM. (HONS)
SEMESTER – VI (MINOR)
SAMPLING IN RESEARCH
COURSE CODE – DSC-M-STAT-364
CREDIT MARK DISTRIBUTION – 04

COURSE OBJECTIVES

A course on Sampling in Research is designed to introduce students to the principles and methods of sampling in the context of conducting research studies. Sampling is a critical aspect of research, as it involves selecting a subset of individuals or items from a larger population to make inferences about the entire population. The course aims to equip students with the necessary knowledge and skills to design and conduct sampling procedures effectively. Throughout the course, students may engage in practical exercises, case studies, and simulations to apply sampling methods and gain hands-on experience in selecting samples for different research scenarios. By the end of the course, students should be able to make informed decisions about selecting appropriate sampling methods for their research studies and understand the implications of sampling choices on the validity and generalizability of research findings.

PRE – REQUISITE

A foundational understanding of basic mathematics is essential for sampling in research. Students should be familiar with simple arithmetic and basic statistical concepts. Familiarity with introductory research methods or statistics is beneficial. Students should have a basic understanding of research design, data collection, and descriptive statistics. Basic knowledge of probability concepts is helpful, especially for understanding probability sampling methods used in research. Strong critical thinking skills are essential for understanding the implications of sampling choices and evaluating the validity of research studies.

COURSE OUTCOMES

Completing a course on Sampling in Research should empower students with the knowledge and skills necessary to make sound sampling decisions in research studies, ensuring that the collected data accurately represent the population of interest and enable valid inferences and generalizations.

UNIT	CONTENT	WEIGHTAGE
1	<p>SAMPLING METHODS</p> <ul style="list-style-type: none"> ➤ Meaning and definition of Population (finite, infinite, homogeneous, heterogeneous). Meaning and definition of Sample, Sample size. ➤ Need of Sampling ➤ Definition of Population Study and Sample Study and difference between them. ➤ Characteristics of Good Sample ➤ Introduction to Survey Method of Enumeration ➤ Census Enumeration ➤ Sample Enumeration ➤ Theoretical Description of Different Sampling Methods ○ Probabilistic Sampling <ul style="list-style-type: none"> ➤ Simple Random Sampling ➤ Systematic Sampling ➤ Stratified Sampling ➤ Cluster Sampling ➤ Multi-Stage Sampling ○ Non probabilistic sampling methods <ul style="list-style-type: none"> ➤ Convenience Sampling ➤ Purposive Sampling ➤ Snowball Sampling ➤ Quota Sampling ➤ Expert Sampling ➤ Judgmental Sampling 	25%
2	<p>SIMPLE RANDOM SAMPLING AND TECHNIQUES</p> <ul style="list-style-type: none"> ➤ Meaning of Simple Random Sampling (SRS), With Replacement (SRSWR) and Without Replacement (SRSWOR) ➤ Methods of selecting SRS – Lottery method, Random number table method, Computerised random number method. ➤ Simple meaning of unbiasedness, population mean and variance, sample mean and variance. ➤ Verification of various results through simple numerical examples <ul style="list-style-type: none"> ✓ Verification of unbiasedness for sample mean ✓ Verification of unbiasedness for variance of sample mean ✓ Sample variance is an unbiased estimator for population variance. For simple random sampling (For with replacement and without replacement) 	25%

<p>3</p>	<p>STRATIFIED SAMPLING AND SYSTEMATIC SAMPLING TECHNIQUES</p> <ul style="list-style-type: none"> ➤ Introduction to the need for Stratified Random Sampling (StRS). Definitions stratum, stratified random sampling. ➤ Advantages of StRS. ➤ Methods for choosing sample size from different strata – Equal allocation, Proportional allocation, Neyman’s or optimum allocation, based on cost of survey and variability (theoretical explanation). Notations and formulas for mean and variance for StRS. ➤ Simple numerical examples for stratified random sample to verify the result (maximum up to three strata) ✓ Stratified random sample mean is an unbiased estimator for population mean ✓ Calculation of the variance of stratified sample mean ➤ Introduction to Systematic Sampling, its relation with StRS. ➤ Advantages of Systematic sampling. Brief introduction circular systematic sample ➤ Simple numerical examples for systematic sample to verify the result ✓ Systematic random sample mean is an unbiased estimator for population mean and calculation of the variance of systematic sample mean. 	<p style="text-align: center;">25%</p>
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<p>4</p>	<p>INTRODUCTION TO RESEARCH</p> <ul style="list-style-type: none"> ➤ Introduction to Research: <ul style="list-style-type: none"> ○ Understanding the meaning and significance of research ○ Differentiating between research, inquiry, and problem-solving ➤ Characteristics of Good Research: <ul style="list-style-type: none"> ○ Identifying the key characteristics of good research, such as validity, reliability, and generalizability ○ Understanding the importance of unbiased research design ➤ Research Process: <ul style="list-style-type: none"> ○ Overview of the research process: defining research questions, formulating hypotheses, and setting research objectives ○ Steps involved in conducting research: literature review, data collection, data analysis, and interpretation ➤ Research Design: <ul style="list-style-type: none"> ○ Different research designs, including experimental, non-experimental, descriptive, and correlation designs ○ Understanding the strengths and limitations of each research design ➤ Data Collection and Sampling Methods: <ul style="list-style-type: none"> ○ Primary data collection methods: Questionnaire, Observations, Experiments. Secondary data sources: utilizing existing data and literature. Brief understanding about importance of sampling in research (Basics) 	<p style="text-align: center;">25%</p>
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<ul style="list-style-type: none"> ➤ Research Ethics: ➤ Ethical considerations in research involving human subjects or animals ➤ Principles of research ethics and institutional review boards (IRBs) ➤ Writing and Presenting Research: <ul style="list-style-type: none"> ○ Organizing and presenting research findings effectively ○ Basics of academic writing, research reports, and research papers ➤ Critical Thinking in Research: <ul style="list-style-type: none"> ○ Developing critical thinking skills to evaluate research studies and their implications ○ Identifying strengths and weaknesses in research methodologies 	
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MODE OF EVALUATION

Evaluation will be divided in two parts.

- **External:** Semester end Examination will be conducted by the Gujarat University of 50 Marks
- **Internal:** Internal Evaluation of 50 marks will be decided by the colleges / Institutes/ University departments as per the instruction given by the University time to time.

FBLD (Flip Blended Learning Design Template)

- Any One Unit from the above syllabus can be discussed by the faculty through online mode.
- Online mode can be SWAYAM MOOC Course or any other suggested by the UGC or Gujarat University.

REFERENCE BOOKS:

1. "Sampling Theory and Methods" by M. Narasimha Murty (published by New Age International Publishers)
2. "Sampling Techniques" by William G. Cochran (translated by A. S. Inamdar and S. S. Salunkhe, published by Technical Publications Pune)
3. "Applied Sampling" by S. K. Haldar and A. Maiti (published by World Scientific Publishing Company)
4. "Sampling Techniques" by P. K. Jha and Pradeep K. Sahu (published by PHI Learning Private Limited)
5. "Research Methodology: Methods and Techniques" by C.R. Kothari
6. "Research Methodology: A Step-by-Step Guide for Beginners" by Ranjit Kumar
7. "Fundamentals of Research Methodology and Statistics" by Y. Muthusamy
8. "Research Methodology: A Guide for Researchers in Agricultural Science, Social Science, and Other Related Fields" by Pragati Kumar and Sanjay Kumar
9. "Research Methodology: Concepts and Cases" by Deepak Chawla.