

Course Title:	Sampling Techniques-I
Course Code:	STAT-302
Semester:	V
Credit Hours:	3 Credit Hours
Pre-requisites:	N / A

Learning Outcomes

By the end of this course, students will be able to:

1. Differentiate between Probability and Non-probability samples, and sampling and non-sampling errors.
2. Estimate mean, proportion and variance under Simple, Stratified and Systematic Random Sampling.
3. Compare systematic, stratified and random sampling for populations with linear trend.

Course Contents

Unit 1

1.1 Errors in Survey Sampling

Sampling and non-sampling errors and their sources, Non-response errors and their sources, Bias and sources of bias, Probability and Non-probability samples.

1.2 Simple random sampling

Estimation of mean, total, proportion and variance, Confidence limits, Determination of sample size, Inverse Sampling.

1.3 Stratified random sampling

Estimation of mean, total, proportion and variance, Arbitrary, proportional and optimum allocations and their comparisons, Determination of sample size, Effect of deviation from optimum allocation, Controlled and two way selection, Gain in precision in stratified sampling as compared with simple random sampling. Construction of strata.

1.4 Systematic sampling

Estimation of mean, total and variance, Systematic sampling under stratification, Comparison of systematic, stratified and random sampling for population with linear trend, Population in random order, Periodic variations.

- **Teaching-learning Strategies:**

Class Lecture method, which includes seminars, discussions, assignments and projects. (Audio-visual tools are used where necessary)

- **Assignments-Types and Number with calendar:**

According to the choice of respective teacher.

- **Assessment and Examinations:**

According to the University's Semester Rules.

Sr. No.	Elements	Weightage	Details
1	Midterm Assessment	35%	It takes place at the mid-point of the semester.
2	Formative Assessment	25%	It is continuous assessment. It includes: Classroom participation, attendance, assignments, and presentations, homework, attitude and behavior, hands-on-activities, short tests, quizzes etc.
3	Final Assessment	40%	It takes place at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing etc.

Text Books

1. Cochran, W.G. (1977). *Sampling Techniques* (3rd ed.). John Wiley and Sons, New York.
2. Fuller, Wayne A. (2009). *Sampling Statistics*. John Wiley and Sons, New Jersey.

Suggested Readings

1. Bethelam, J. (2009). *Applied Survey Methods: A Statistical Perspective*. Wiley
2. Brewer, K. (2002). *Combined Survey Sampling Inference*. Oxford University Press, New York.
3. Kish, L. (1992). *Survey Sampling*. John Wiley, New York.
4. Raj, D., & Chandhok P. (1998). *Sample Survey Theory*. Narosa Publishing House, New Delhi.
5. Raj, D. (1971). *Sampling Theory*. Mc-Graw-Hill Book Company, New York.
6. Singh, R., & Singh, N. (1996). *Elements of Survey Sampling*. Kulwar, Dodrecht.