

## **Stat-422 Sample Survey**

**100 Marks: 03 Credits**

**Number of Class: 35-40**

**Sampling Strategy:** Equal and unequal Probability Sampling with and without replacement. Different sampling schemes, Horvitz-Thompson estimator, probability proportional to size sampling, Brewer's, Durbin, Raj, Murthy, Rao and Cochran's methods, comparisons of their efficiencies.

**Cluster Sampling:** Unequal size and varying probability cluster sampling, Relative Efficiency, Determination of optimum cluster size, Relative Accuracy's, Sub-sampling with units of Equal and Unequal sizes- Two stage, Three stage and Multistage sampling. Optimum sampling and sub-sampling fractions, two stage and Three stage pps sampling, sampling and non-sampling error.

**Double Sampling Procedures and Repetitive Surveys:** Introduction, Double sampling for Stratification, Ratio, Difference, Regression, Product and PPS estimation, Optimum allocation, Sampling on Two and/or More occasions, Repetitive surveys, Multi-phase sampling, Self weighting sampling.

**Non-Response:** Introduction, characteristics of non-response, measuring non-response, dealing with non-response, perspectives on non-response, estimation in presence of unit non-response, methods of reducing non-response and response errors.

### **Text**

1. Cochran, W. G. (1977): *Sampling Techniques*, 3<sup>rd</sup> edition, Wiley, New York.
2. Raj, D. and Chandhok, P. (1998): *Sample Survey Theory*, Narosa Publishing House, New Delhi.

### **References**

1. Chudhuri, A. and Stenger, H. (1992): *Survey Sampling Theory and Methods*, Chapman and Hall/CRC.
2. Hasen, M.H., Horvitz, W.N. and Madow, W. G. (1953): *Sample Survey Methods and Theory, Vol I and Vol II*, Wiley, New York.
3. Islam, M.N.: *An Introduction of Sampling Methods: Theory and Applications*.
4. Kish, L. (1995): *Survey Sampling*, Wiley, New York.

5. Levy, P. and Lemeshow, S. (1999): *Sampling of Populations: Methods and Application*, Wiley, New York.
6. Mukhopadhyay: *Survey Sampling*, Narosa Publishing House Pvt Ltd.
7. Murthy, M.N. (1977): *Sampling Methods*, 2<sup>nd</sup> edition, Statistical Publishing Society, Calcutta.
8. Sing, D: *Theory of Analysis of Sample Survey Design*, New Age Publisher.
9. Thompson, S. K(2002), *Sampling*, John Wiley, New York