

Module Code:	STAT-305 STAT-306
Module Title:	<ul style="list-style-type: none"> <li>• Sampling Techniques (Theory) – 3 Credit Hours</li> <li>• Practical – 1 Credit Hour</li> </ul>
Name of Scheme:	BS Statistics

### Course Outline

1. Sampling and non-sampling errors and their sources. Non-response and their sources. Bias and sources of bias. Probability and Non-probability samples.
2. Simple random sampling. Estimation of mean, total, proportion and variance. Confidence limits, Determination of sample size. Inverse Sampling.
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.
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.

### Books Recommended

1. Cochran, W.G. "Sampling Techniques" John Wiley and Sons, New York, Third Edition, 1977.
2. Raj. D., "Sampling Theory" Mc-Graw-Hill Book Company, New York, 1971.
3. Singh, D. Chaudhry F.S. "Theory and Analysis of Sample Survey Designs", Wiley Eastern Limited, New Dehli, India, 1986.

### Reference Books

1. Fuller, Wayne A. "Sampling Statistics" John Wiley and Sons, New Jersey, 2009.
2. Brewer, K. "Combined Survey Sampling Inference" Oxford University Press, New York, 2002.
3. Raj, D. "Design of Sample Survey" Mc-Graw-Hill Book Company, New York, 1971.
4. Kish, L. "Survey Sampling" John Wiley and Sons, New York, 1965.
5. Som, R.K. "A Manual of Sampling Techniques" Heinemaan Educational Books Limited, London, 1973.
6. Sukhatme, P.V. and Sukhatme, B.V., Sukhatme, S. and Asok, C. "Sampling Theory of Surveys with Applications" Iowa State University Press, Ames, IOWA. Third Edition, 1984.