Sampling Theory (3)
(Effective Fall 2007)

Prerequisite: Stat 325 or Engr 311.

Catalog Description: Mathematical development of sampling. Consideration of simple probability sampling including simple random, stratified random, cluster and multistage sampling. Deriving estimates and variances of estimates for different sampling designs.

Goal: Prepares the students majoring in the mathematical sciences for careers involving Statistics.

Learning Outcomes for Major: This course addresses one or more of the student learning outcomes for the major.

i. apply mathematical concepts and principles to perform numerical and symbolic computations.
ii. use technology appropriately to investigate and solve mathematical and statistical problems.
iii. write clear and precise proofs.
iv. communicate effectively in both written and oral form.
v. demonstrate the ability to read and learn mathematics and/or statistics independently.

Teaching Objectives: The student will:

1. Learn differences in simple random sampling, sampling with replacement and other types of sampling.
2. Estimate population means, totals, proportions, and ratios.
3. Estimate sample sizes for estimating population means and totals.


Outline: Chapter Title (Sections)
1 Introduction
2 Simple Random Sampling
3 Confidence Intervals
4 Sample Size
5 Estimating Proportions, Ratios, and Subpopulation Means
6 Unequal Probability Sampling
11 Stratified Sampling
12 Cluster and Systematic Sampling
Various other Topics Selected by the Instructor

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