## Section 1.4

Other Effective Sampling Methods

Objectives

- Obtain a stratified sample
- Obtain a systematic sample
- Obtain a cluster sample

A **stratified sample** is obtained by separating the population into nonoverlapping groups called *strata* and then obtaining a simple random sample from each stratum

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A **cluster sample** is obtained by selecting all individuals within a randomly selected collection or group of individuals.

A **systematic sample** is obtained by selecting every k^{th} individual from the population. The first individual selected is a random number between 1 and k.
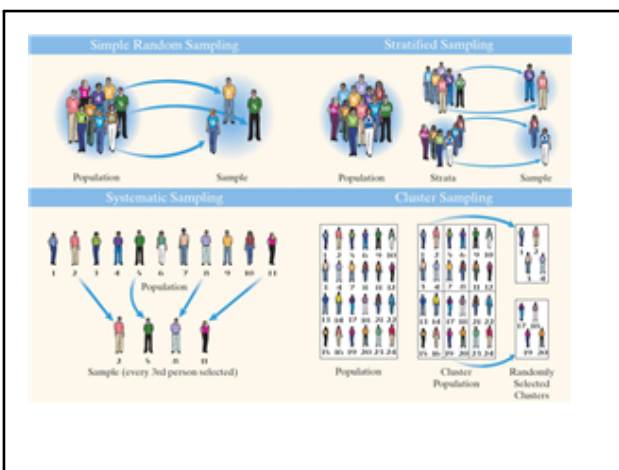
5004 Employees, use systematic

sampling to choose every kth person. n=50

k= 100 $500\frac{4}{50} = 100.8$

Suppose that we randomly select #5. Starting with the first individual selected, the individuals in the survey will be 5, 105 , ..., 4905 .

$105 + 48(100)$

A **convenience sample** is one in which the individuals in the sample are easily obtained.

CAUTION

Any studies that use this type of sampling generally have results that are suspect. Results should be looked upon with extreme skepticism.

Section 1.5

Bias in Sampling

Objective

Explain the sources of bias in sampling

If the results of the sample are not representative of the population, then the sample has **bias**.

Three Sources of Bias
- Sampling Bias
- Nonresponse Bias
- Response Bias

Sampling bias means that the technique used to obtain the individuals to be in the sample tends to favor one part of the population over another.

Undercoverage is a type of sampling bias. **Undercoverage** occurs when the proportion of one segment of the population is lower in a sample than it is in the population.

Call Homes during the Day

Nonresponse bias exists when individuals selected to be in the sample who do not respond to the survey have different opinions from those who do.

Nonresponse can be improved through the use of callbacks or rewards/incentives

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Response bias exists when the answers on a survey do not reflect the true feelings of the respondent.

Types of Response Bias
→ • Interviewer error
→ • Misrepresented answers
- Wording of questions
- Order of questions or words

Frame

a sampling frame is a complete list of all the members of the population that we wish to study

Population : <u>Birds that are</u>
<u>pink.</u>

Sampling Frame :

Names of All Pink Birds {
- Brown-capped Rosy-Finch.
- White-winged Crossbill.
- American Flamingo.
- Roseate Spoonbill.
- Black Rosy-Finch.
- Cassin's Finch.
}

Two Types of Questions:

Open Vs. Closed

Fill in Blanks   Multiple choice
             T/F

Free Response