

## Other Effective Sampling Methods

## Definitions

- Frame = A list of all the individuals within the population

## Definitions

- Stratified Sample = Obtained by separating the population into nonoverlapping groups called strata and then obtaining a simple random sample from each stratum. The individuals within each stratum should be homogeneous (or similar) in some way. Need a frame  
Example: Democrats, Republicans, Independent

## Definitions

- Systematic Sample = is obtained by selecting every kth individual from the population. The first individual selected corresponds to a random number between 1 and k. Doesn't require a frame

## Steps in Systematic Sampling

1. If possible, approximate the population size, N.
2. Determine the sample size desired, n.
3. Compute  $N/n$  and round down to the nearest integer. This value is k.
4. Randomly select a number between 1 and k. Call this number p.
5. The sample will consist of the following individuals: p, p+k, p+2k, ..., p+(n-1)k

## Definitions

- Cluster Sample = is obtained by selecting all individuals within a randomly selected collection or group of individuals. Don't need a complete frame just a frame of the groupings.
- homogeneous = similar
- heterogeneous = dissimilar

## Definitions

- Convenience Sample = a sample in which the individuals are easily obtained

Most Popular Type:

self-selected : individuals themselves decide to participate (voluntary response samples)

### 1. Identify the type of sampling used (Similar to p.36 #11-24)

An instructor walks into a classroom and asks his students whether they are for or against making marijuana legal.

### 2. Identify the type of sampling used (Similar to p.36 #11-24)

The instructor randomly picks the number 7 and randomly picks the number 5. He then takes a sample of students coming out of the library starting with the 7<sup>th</sup> student and every 5<sup>th</sup> one after that.

### 3. Identify the type of sampling used (Similar to p.36 #11-24)

Administration randomly picks 3 classrooms during the 8:00 slot on MWF and administers a survey to everyone in those classrooms

### 4. Identify the type of sampling used (Similar to p.36 #11-24)

Administration splits the students at a college into two groups (Men and Women) and randomly picks from within each group.

### 5. Identify the type of sampling used (Similar to p.36 #11-24)

An instructor randomly pick 40 students from everyone on the campus to see if they think the government captured a space alien in Cowley County.

Naval Craft? Hmmmm, how much are you selling London Bridge for? (2012)



## 6. Systematic Sample

There are a total of 3300 individuals in a town. A company wishes to conduct a systematic sample. Determine  $k$  if the sample size is 70.

## 7. Systematic Sample

A survey is to be conducted at a company. The company has 4000 employees and wants to conduct a systematic sample of size 35 to determine how many think the CEO is an alien.

(a) What is  $k$ ?

(b) Suppose that 3 is randomly picked, then the individuals in your survey will be:

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

