

# An Example

<u>54463</u>
15389
85941
61149
05219
41417
28357
82341
23452
34343
67234
32741
23421
24980
11245

If you want to select 500 samples/subjects out of 5,000 students, ...

- The population is all 5,000 first year students in a university.
- The desired sample size is 10% of the 5,000 students, or 500 students.
- The researcher has a computer printout of all the students.
- Using the printout, the researcher can assign each student a number from 0,000 to 4,999.
- The researcher uses a table of random numbers at an arbitrarily selected number such as the one on your left hand side.
- Since the population has 5,000 members, we are concerned with only the last four digits of the underlined number, 4463.
- There is a student assigned the number 4463 so that student is in the sample.
- The next number in the column is 15389. The last four digits are 5389. Since there are only 5,000 students, there is no student assigned the number 5389. Therefore, number 5389 is skipped.
- Applying the above steps to the remaining numbers shown in the column, we include the students numbered 1149 and 1417 until we have selected 500<sup>31</sup> students.

# Probabilistic Sampling – cont'd

## **2. Systematic Sampling Method:**

Systematic sampling is sampling in which individuals are selected from a list by taking every  $k$ th name. If  $k = 4$ , selection involves taking every 4th name, if  $k = 10$ , every 10th name, and so forth. What  $k$  actually equals depends on the size of the list and the desired sample size.

In other words, a sample is drawn by arbitrarily choosing a beginning point in a list and then sequentially selecting every  $k$ th element from the list.

# *Steps in Systematic Sampling*

1. Define the population.
2. Determine the desired sample size.
3. Obtain a list (preferably randomized) of the population.
4. Determine what  $k$  is equal to by dividing the size of the population by the desired sample size.
5. Select some random place at the top of the population list.
6. Starting at that point, take every  $k$ th name on the list until the desired sample size is reached.
7. If the end of the list is reached before the desired sample is reached, go back to the top of the list and follow steps 5 through 7.