Chapter 6

6-2.   Read 25 four-digit random numbers and, if any random numbers are 2000 or greater, subtract a multiple of 2000 to obtain numbers less than 2000. Eliminate duplicates and draw additional random numbers to replace the number eliminated.

6-5.   a.   The population consists of all the pages in the book; the pages can be randomly sampled and number of words counted on the selected pages would constitute the data.

           b.   All moving passenger cars during the one-week period can be considered as the population. The population can be framed in two dimensions: time and space. Passing cars can be observed at randomly selected locations at randomly selected times and the total number of cars and the number with only the driver can be observed.

           c.   The population consists of all dogs in the county. Households in the county can be sampled in three stages: census tracts, blocks, and households. The number of dogs found in the sample households and the number of dogs that have been vaccinated against rabies can then be recorded.

6-8.   a.   Some people have unlisted telephone numbers and others do not have telephones. People who have recently moved into the community are also not listed. Thus, these groups would be considered unrepresented in the sample. The advantage is that the frame, although incomplete, is already compiled.

6-10.   a.   random selection of the subjects from the population

           b.   both known and unknown to the researcher

           c.   the sample size is very small

           d.   all are appropriate

           e.   confounded extraneous variables

           f.   more similar to each other

6-11.   a.   Thirty classes can be randomly allocated to two curricula.

b. A simple random allocation of 6 teachers to two curricula may not be appropriate, instead, teachers can be matched based on teaching experience before randomly allocating one member of each pair to the new curriculum and the other member to the old curriculum.

6-14. a. Fewer experimental subjects would be needed compared with the two-group comparison design.

b. The random assignment of subjects to the initial diet presumably balanced the sequencing effect but it might not be adequate because of the small sample size.

c. The carry-over effect is ineffectively controlled by not allowing a wash-out period and the granting of a leave to some subjects.

6-15. a. To ensure that the subjects would not take any medication during the washout period.

b. If those subjects who withdrew had more side effects and were dissatisfied more with clinical outcome than those who remained in the study, the experimental results would undoubtedly be affected.

c. Will be difficult to generalize beyond male veterans.

6-16. a. randomized block design

b. The effect of organizational and leadership types is not controlled effectively, although the matching may have reduced the effect of this confounder.