CHAPTER 1

THE LANGUAGE OF STATISTICS

OBJECTIVES

After completing this chapter, you should

- know different ways to define statistics.
- be able to provide reasons for the study of statistics.
- appreciate a context (as a second language) for the study of statistics.
- appreciate the importance of being organized in trying to work statistical problems and of regular class attendance.

CHAPTER REVIEW

Statistics are summary numbers, or indices, that result from the analysis of data. Statistics is also a set of tools concerned with the collection, organization, and analysis of numerical facts or observations. There are at least three good reasons for taking a course in statistics:

1. We are surrounded by statistics, and some statistical sophistication will make us more informed consumers of statistics.
2. A knowledge of statistics is necessary for an understanding of the specialized literature in the behavioral sciences.
3. Behavioral scientists need statistical techniques to deal with the variability that is inherent in observations made on living organisms. Statistics is the branch of mathematics that deals with variability.

Although it uses numbers, statistics isn't completely mathematical. In fact, it can be viewed as a language, with new vocabulary to learn as well as "grammar" and "syntax," which are used to draw inferences and make decisions about hypotheses. As with a second language, the best way to learn statistics is by doing it, by practice and more practice.

Although statistics isn't strictly a mathematics course, some mathematical skill is necessary. If it has been a while since you had your last mathematics course, take time to read and work through Appendix 1 in your text or in this *Study Guide.* Among the tools you will need for the course, we recommend a good, but inexpensive, light-powered calculator; take the time to work through the instructions you receive with your calculator. In addition, be prepared to do homework and attend class regularly.

Finally, we recognize that many of you probably entered this course with a certain degree of anxiety. Although this anxiety is quite natural, it is to a large extent unwarranted. By regularly attending class, reading the text, and working problems outside the classroom, you will succeed in this course.

TERMS TO DEFINE AND/OR IDENTIFY

statistics

indices

data

FILL-IN-THE-BLANK ITEMS

What Is Statistics?

Summary numbers resulting from data analysis are (1) _____. A set of procedures and tools

used to organize and interpret facts, events, and observations is called (2) _____.

Why Study Statistics?

Reasons for psychology students to take a course in statistics include the following:

1. We are surrounded by (3) _____.

2. It will help you become a more informed (4) _____ of statistics.

3. Psychology is defined as the scientific study of (5) _____ and cognition. Because what

    psychologists study is quite (6) _____, a knowledge of the branch of mathematics called

    statistics is necessary.

Goals for the Text

We have several goals for students using this text:

1. To help you learn the basic (7) _____, procedures, and logic of statistics.

2. To assist you in being a better (8) _____ of statistical information.

3. To improve your ability to read and understand the professional

    (9) _____.

4. To give you the (10) _____ to calculate and interpret statistics.

Statistics as a Second Language

Mastering statistics is much like learning a second (11) _____. In statistics there are

conventions that must be learned, and the best way to learn them is by (12) _____. You will

first be presented with a (13) _____ of statistics. Similar to your experience with a second

language, in statistics you will probably always experience some (14) _____ and

(15) _____. The best way to combat these feelings is (16) _____.

What You Need to Use This Book Successfully

To do homework, you will need (17) _____ and paper and an inexpensive light-powered

(18) _____. In addition to doing homework regularly, good (19) _____ is

essential.

PROBLEMS

1. List 10 examples of statistics you have encountered recently (a newspaper is a good place to start).

2. If you haven't already read the instructions that came with your calculator, do so now. Then use the memory function of your calculator to solve the following problems:

    a. $(25)(3) + (23)(5) + (22)(7) =$

b. $\dfrac{27}{5} + (13)(15) - (22)(7) =$

c. Find the square root of $\dfrac{14{,}332}{422} - 5.35^2$

d. $8 + 7 + 12 + 3 - 10 - 6 =$

e. $8^2 + 7^2 + 5^2 + 2^2 =$

f. $\dfrac{(29)^2}{7} =$