

How To Read/Use/Study a Statistics Textbook

The basic layout of a statistics textbook has each chapter dealing with a particular technique including concepts, formulas, calculations, and examples. As you read the book, it is important to notice what the concepts are, when and why you would use them, the formulas that correspond to those concepts, and the calculations those formulas require. Each chapter typically ends with questions for practicing the techniques that the chapter introduces.

When you set out to read a chapter, feel free to read it through first—do not try to highlight or underline when you first read it. (If you do, you'll probably highlight or underline too much or the wrong information.)

Upon your second read through, have a piece of paper next to the book with a line drawn vertically down the center and follow this procedure:

1. For each section or paragraph, make a question out of the heading and identify the answer to this question within the section. Write these out with the question on the left side of the paper and the answer across from it on the right side of the paper—in your own words. Do this for each section of the chapter.
2. As you come across concepts or specific techniques and their formulas, write those out including the name of the technique, symbol, formula (and symbols used in the formula), when to use this technique, and how to interpret or make sense of it. Do this for each concept/technique in the chapter and include an example of how to calculate the formula, noting where you got the numbers you're using.
3. At the end of the chapter you will find practice questions. Some of these will be assigned for homework—start with those. Write out each question and answer so that it makes complete sense without having to refer back to the book. Include a statement or two as to why you made the decisions you did. Do the other questions for more practice—especially if the procedure is not coming easier to you after finishing the assigned questions.

The outcome of following this procedure includes having:

1. Great Study Sheets with questions on one side and answers on the other so that you can cover up one side and quiz yourself—or play jeopardy with your study group.
2. Great Formula Sheets so that when you are given a set of data and asked to do something with it, you can quickly remind yourself what you have to do and how to do it.
3. Great examples and reinforcement of the tools you're learning with plenty of examples to help you when you've got more work to do.

Basically, $1 + 2 + 3 =$ an enriched toolkit for making sense not only of the textbook but of the world around you!

If you'd like more to play with after you've exhausted what's in the text, there are many other books out there—and examples to play with all around you. Analyze articles in the news that report data; go online to the web sites of research organizations (Gallup, Roper, census.gov, etc.); make up your own data to see what happens when it looks a certain way..

A bibliography follows listing some useful books. The professor has most of them in her library—feel free to ask to see them when you come to her office. If you're thinking of buying one or more, do come to see what they look like before you order them. (And if you find a good supplementary book that's not on this list—let her know so she can add it!)

BIBLIOGRAPHY

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Rowntree, Derek. 2004. *Statistics Without Tears: A Primer for Non-Mathematicians*. Pearson/Allyn & Bacon. ISBN 0-205-39509-0.

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EXAMPLES

Study Sheet: making questions out of section headings and answers out of the section text.

Textbook excerpt:

The Interval Level

By contrast, the *interval level of measurement* not only tells us about the ordering of categories but also indicates the exact *distance* between them. Interval measures use *constant units of measurement* (for example, dollars or cents, Fahrenheit or Celsius, yards or feet, minutes or seconds) that yield *equal intervals* between points on the scale. ...

...

The Mean

By far the most commonly used measure of central tendency, the arithmetic mean \bar{X} , is obtained by adding up a set of scores and dividing by the number of scores. Therefore, we define the mean more formally as *the sum of a set of scores divided by the total number of scores in the set*.

Study Sheet version:

What is the Interval Level of Measurement?

A variable whose categories are named, have order or rank, and have equal distances between them. Example: Income categories are in dollars; Test score categories are in points.

What is the Mean?

A measure of central tendency, useful only for interval variables, that indicates the numerical average and considers all the data (not just the one in the middle or the one that shows up most often).

Formula: MEAN = $\bar{X} = \frac{\sum X}{N}$ which means that I add up all the values for the variable

(each 'score' is an 'X') and divide by the total number (N).

Example: GPA! Last semester I took four classes and got an A(4), two B's(3, 3), and a C(2).

Thus $4+3+3+2=12$ and $\frac{12}{4} = 3$... Thus my mean grade last semester was a B, not bad!