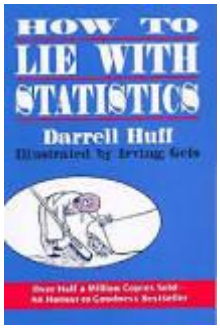
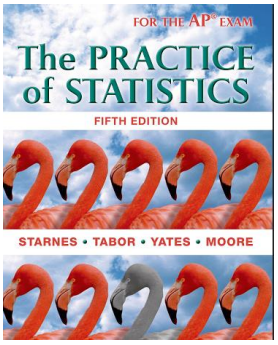
AP Statistics

Required Materials

Students should have a TI 84 or TI inspire calculator, graph paper, and a notebook reserved exclusively for this class. Students will be required to buy The Practice of Statistics, 4th edition ISBN number for this book is 978-1-4292-4559-3 or The Practice of Statistics, 5th edition ISBN # 1-4641-08873-0.

Students will be required to read How to Lie with Statistics by Darrell Huff and complete the enclosed questions. You do not need to buy this book. Use your own paper to answer the questions.





AP Statistics Summer Reading

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Read the short book How to Lie with Statistics by Darrell Huff. You may check the book out from the library or borrow the book so do not need to buy it. Although the book is over 50 years old, its wisdom is needed now more than ever, as increasing computer power and newspaper headlines drown us all in a sea of "statisticulation". This is the word coined by Darrell Huff to describe misinformation by the use of statistical material. Biased samples, dubious graphs, semi-attached figures: he describes all the usual suspects clearly and simply, rounding off with the most useful topic of all: How to Talk Back to a Statistic.

Here Huff explains "how to look a phony statistic in the eye and face it down: and no less important, how to recognize sound useable data in the wilderness of fraud". Look for bias, he advises, conscious and unconscious: find out "who-says-so" (if an "O.K. name" is cited, make sure it stands behind the information, not merely beside it); ask how the authority knows; try to find out what's missing; check whether the raw figure justifies the conclusion drawn and, most straightforwardly of all, ask yourself if the statistic makes sense.

The very final example of the book concerns trends. If you know how something is changing over some short time period, you can make the situation seem much more extreme by projecting the trend into the future and coming up with some headline-grabbing prediction. An increase of, say, a percent in the rate of some disease over the last ten years can be converted into an epidemic of biblical proportions if you just predict that the trend continues unchanged for long enough. There may be no particular reason to believe that the trend will continue but in meantime the headlines are written and the media has their scare story.

How to Lie with Statistics is entertainingly illustrated with original cartons, and written in a clear and easy style (Huff was a professional author who had done postgraduate work in statistics). It is short – 128 pages and that includes illustrations. It could be one of the most valuable investments of two hours of your time you will ever make!

It is my hope that this assignment will give you a better background on **what statistics is and how it will impact the rest of your life!** Each question is worth 2 points; one point for completion, two points for correctness and depth.

Your summer reading is due the first day (**Thursday, August 18th)** of class. Your written responses are necessary to do well on the multiple choice test you will have over "How to Lie With Statistics" during your first week of class. Make sure it is organized and your responses reflect the level of the course. Have fun. I look forward to seeing you in August!

AP Statistics Summer Reading

Answer these questions from the book **How to Lie with Statistics** by Darrell Huff

Chapter 1. "The Sample with the Built-in Bias"

1. What is a sample?
2. Give an example of bias from the book.
3. What is a random sample?
4. What is a stratified random sample?
5. Give an example of a stratified random sample from the book.

Chapter 2. "The Well-Chosen Average"

1. Define the following terms:
    a. Skewed
    b. Mean
    c. Median
    d. Mode

Chapter 3. "The Little Figures That Are Not There"

1. Why should you be suspicious of a small sample?
2. Average alone is misleading. Why?
3. What is a better description than average (or center)?
4. Why is it important to label all graphs?

Chapter 4. "Much Ado about Practically Nothing"

1. What is probable error?
2. What does probability error have to do with Linda's and Peter's IQs?
3. Explain how the advertisement for Old Gold described on page 59 is dishonest.

Chapter 5. "The Gee-Whiz Graph"

1. What is a misleading graph?
2. Why is it important to label the axis of every graph you make in Statistics?

Chapter 6. "The one-Dimensional Picture"

1. Why are picture graphs used?
2. How can they be deceptive?

Chapter 7. "The Semiattached Figure"

1. What is a semiattached figure? Give an example from the book.
2. Why should you watch for semiattached figures?
3. How do before-and-after pictures use semiattached figures?

Chapter 8. "Post Hoc Rides Again"

1. Can you say that "A" causes "B" just because "B" follows "A"?
2. Name another reason why "B" follows "A" if "A" does not cause "B".
3. Why should you not take a correlation beyond the data? (See page 91)

Chapter 9. "How to Statisticulate"

1. How can maps be used to deceive?
2. If a number has lots of places after the decimal, is it more accurate? Explain.
3. If your pay is decreased by 50% and then increased by 50% is it back to what it was to begin with? Explain.
4. How are Percentiles a way to Statisticulate?

Chapter 10. “How to Talk Back to a Statistic”

1. What are the 5 questions you should ask when looking at a statistic?
2. What was the problem with the “Journal of Commerce” survey?
3. Give an example of how the subject can be changed.
4. What did Mark Twain say about the nonsense side of extrapolation in “Life on the Mississippi”?