DIRECTIONS:

- Important! Before starting, see advice in the STATS GUIDE on Notebook page 1!

- Your decision to Carefully Read and Follow that advice (or not) can be fateful for your semester’s performance and course grade!

- P.S. The same homework strategy works wonderfully in Business Analytics (MSCI 2800), which all business majors take. It’s so smart to develop good stats homework skills NOW!

- Refer to the Six Steps Diagram near the start of Topic 1 and also to Topic 1 Examples 1 and 2 to get started. (Leverage your Notebook Example answers to help with homework.) Notice that careful and detailed writing is crucial to the Six Steps!

- It’s a great idea to check answers to each problem on the Stats Website before going to the next one to ensure that you’re on the right track. (The Homework Solution may also be printed for convenience.)

- HW1 is due by next Tuesday’s Discussion but isn’t collected. Instead, a Discussion quiz will test your understanding of and skills with the Six Steps.

Problem 1 (Cable service in El Paso)
CableView, Inc. is a cable company operating out of Tucson, Arizona. CableView is considering an ambitious plan to expand its operations into El Paso, Texas in 2018. In order to attract new business in the El Paso market, CableView is considering offering a “cut-rate deal” of full television cable service (including movie channels) for 12 months for a fee of $250 per household.

Suppose that there are 22,000 households in El Paso that currently carry no cable service. Due to administrative and other start-up costs, CableView cannot “break even” or make money on the venture unless at least 3800 of the cable-less households in El Paso accept CableView’s cut-rate offer. CableView hires a polling firm in El Paso to randomly contact cable-less households in El Paso by telephone, and ask the question “Would your household be willing to purchase CableView’s service in 2018 for $250?” The polling firm agrees to continue the telephone poll until a “Yes” or “No” answer is received from 300 cable-less households in El Paso.

Suppose in the telephone poll that 33 out of the 300 cable-less households contacted agree to purchase CableView’s service in 2018.

(a) Apply the Six Steps of Inference.

- First, express the question non-numerically.
- Step 1.
- Step 2.
- Step 3.
- Step 4.
- Step 5.
- Step 6. (Problem 1 continued next page)
Problem 1, continued.

(b) Should CableView enter the El Paso market in 2018, based on these sample results? Explain.

(c) Name one weakness of the survey plan that may reduce the reliability of the inference.

Problem 2 (Inventory in a sports shop)

On Jan. 10, the store manager closed the store to take the annual store inventory. The manager wanted to know the total retail value of all athletic shoes in stock, so she painstakingly wrote down the retail price printed on the outside of the box of each of the 546 pairs, then added them up on a calculator. Suppose the amount on the calculator adds up to $35,234.90.

(a) Apply the Six Steps of Inference.

(b) What’s the relationship between the sample and the population?

(c) Describe the reliability of this inference. Explain.

Problem 3 (Determining neighborhood income)
Shop N’ Go, Inc. is considering the potential of opening a new convenience store in a middle-class suburban neighborhood in Miami, Florida. There are exactly 1240 different households in the neighborhood, and Shop N’ Go would like to determine the average household income in the neighborhood. The management of Shop N’ Go estimates that a minimum average income of $60,000 will be needed in order for the store to be profitable.

Shop N’ Go hired a local marketing research firm to conduct a door-to-door survey of household income. Suppose that sampling continued until 5% of all households gave responses. Suppose further that incomes obtained in the survey average $64,425.

(a) Apply the Six Steps of Inference. (Also express the question non-numerically.)

(b) Should Shop N’ Go open the convenience store? Explain.

(end of assignment)