Review for Exam 1: Ch. 1 – 3

Exam 1 is Monday, June 29. Bring your written homework, your calculator, pencil and eraser, 3”x5” index card of notes, and I’ll provide the exam and the “Tables and Formulas” handout.

There will be a mixture of multiple choice and demonstration/short answer problems. The exam is worth 75 points.

Chapter 1 Introduction to Statistics

1–2 There’s lots of **vocabulary** there. Be able to use it correctly. Questions from this section will be mostly multiple choice.

1–3 Be familiar with the **problems that can arise in conducting a survey**: randomness (or lack thereof), small samples, loaded questions and self interest studies are a few that jump out at me.

1–4 Be able to distinguish between an **observational study** and an **experiment**. I will not ask about cross-sectional, retrospective and prospective studies. Do understand the basic ideas of **random sampling**. Determine if a random sample is actually a **simple random sample**. Out of all the other types of sampling (systematic, convenience, stratified and cluster), you only need to be familiar with **convenience sampling** (and its pitfalls). I will not ask about sampling errors.

1–5 Be comfortable with your calculator! I’ll provide the Formulas & Tables sheet that appears at the beginning of the book, though you may not need it. **You do not need the TRIOLAXE APP for the exam.**

At the end of Chapter 1, you’ll find a section “**Chapter Review**”. I suggest reading this material, and considering problems # 1, 3, 4, 7.

Chapter 2 Summarizing and Graphing Data

Main calculator functions: STAT → Edit (to enter data); 2\(^{nd}\) Y= (STAT PLOT) for graphing

2–2 Be able to **interpret a frequency distribution** (regular, relative and cumulative). I will not require you to enter large sets of data into your calculator (only small ones). Be sure to know the vocabulary for **classes** (limits, boundaries, midpoints, class width).

2–3 Be able to interpret a **histogram**.

2–4 Understand the difference between a **histogram**, a **relative frequency histogram**, a **frequency polygon**, and an **ogive**. You may also be asked about **scatterplots** or **dot plots**. There may be some but not a lot of graphing on the exam. You may find it easier to do any graphs by hand! Be able to **construct** and also to **interpret a Stem-and-Leaf plot**. I will not ask about Pareto charts, pie charts, or other types of graphs not mentioned above.

Check out the “**Chapter Review**” at the end of Chapter 2. You might try the following problems: Statistical Literacy and Critical Thinking: #2, 4
Chapter 3 Statistics for Describing, Exploring, and Comparing Data

Main calculator function: STAT → CALC → 1-VarStats

3–2 Be able to find the mean, median and mode from raw data. Also be able to find the mean of a frequency distribution (table). I will not ask about the midrange. Understand left and right skewing of data sets.

3–3 Know the connection between standard deviation and variance, but I will ask more about standard deviation. Be able to calculate the standard deviation from data and from a frequency distribution. What does the standard deviation measure? Be familiar with the Range Rule of Thumb and the Empirical Rule (Chebyshev’s Theorem will not be on the exam). See how they are similar and how they are different, and what the respective requirements are. Notice that the percentages for these are not on the “Formulas and Tables” sheet.

3–4 Why do we need z-scores and how do we find them? Understand and be able to find quartiles.

3–5 Understand and identify outliers (the range rule of thumb is useful here). Be able to construct (using the 5-number summary), interpret, and compare boxplots.

Check out the “Chapter Review” at the end of Chapter 3. You might try the following exercises: #1 (though I won’t put a data set this large on the exam), 2 – 8