## Chapter 3 – Graphical Methods for Describing Data

**Section 3.1 – Displaying Categorical Data: Comparative Bar Charts and Pie Charts**

- **Comparative Bar Charts**

Examine Figures 3.1 and 3.2: Why is the second chart an incorrect display?

- **Pie Charts**

Under what conditions is it appropriate to use a pie chart?

- **A Different Type of "Pie" Chart: Segmented Bar Graph**

In what way is a segmented bar chart similar to a pie chart?

- **Other Uses of Bar Charts and Pie Charts**

The charts in Examples 3.6 and 3.7 were not created from frequency distributions. Describe how the data in the tables was converted to appropriate graphic displays:

**Homework: # 2, 3, 8, 9, 10, 13, 14**

**Section 3.2 – Displaying Numerical Data: Stem-and-Leaf Displays**

List some of the benefits of using a stem-and-leaf plot to display data:

When would it be inappropriate to use a stem-and-leaf plot?

- **Repeated Stems to Stretch a Display**

Under what conditions would stems need to be repeated?

- **Comparative Stem-and-Leaf Displays**

What are the advantages of using comparative stem-and-leafs plots?

**Homework: # 16, 17, 20, 21**

**Section 3.3 – Displaying Numerical Data: Frequency Distributions and Histograms**

- **Frequency Distributions and Histograms for Discrete Numerical Data**

Give an example of a discrete numerical variable.

How is relative frequency calculated?

When is it appropriate to use a histogram rather than a stem-and-leaf display?

What is graphically represented by the area of the rectangles in a histogram?

- **Frequency Distributions and Histograms for Continuous Numerical Data**

Give an example of a continuous numerical variable.

What is the rule of thumb for estimating the appropriate number of intervals in a histogram?

- **Histograms for continuous Data**

Compare the reasons for choosing equal versus unequal class interval widths in a histogram.

What is meant by a *density scale* and why is it used?

- **Histogram shapes**

Sketch and briefly describe each basic shape discussed in this section:

Unimodal                              Bimodal                              Multimodal

Symmetric                             Right Skewed                         Left Skewed

Normal                                Heavy-tailed                         Light-tailed

- **Do Sample Histograms Resemble Population Histograms?**

Do sample histograms resemble population histograms? Why or why not?

- **Cumulative Relative Frequencies and Cumulative Relative Frequency plots**

How is cumulative relative frequency computed?

What is meant by the word percentile?

What is the 50$^{th}$ percentile most commonly called?

**Homework: #23, 25, 28, 32, 36**

**Section 3.4 – Displaying Bivariate Numerical Data**

What is the purpose of a scatterplot?

- **Time Series Plot**

How does a time series plot differ from a scatterplot?

**Homework: #38, 39, 40, 45**

**Section 3.5 – Interpreting and Communicating the Results of Statistical Analyses**

• **Communicating the Results of Statistical Analyses**

Write a paragraph to summarize the ten important things to remember when communicating the results of statistical analyses that include graphical displays of data.

• **Interpreting the Results of Statistical Analyses**

Write a paragraph to compare and contrast the graphs in figures 3.38 and 3.39.

• **What to Look for in Published Data**

Look for a published article that contains one or more graphical displays online or in printed material like a magazine or newspaper. Attach it to your Chapter 3 Notetaking Guide and perform an analysis regarding shape, center, and variability similar to the example from this section of the book.

• **A Word to the Wise: Cautions and Limitations**

Briefly summarize the caveats for constructing and interpreting graphical displays:

    1.

    2.

    3.

    4.

    5.

**Homework: # 46, 47, 48, 49, 50, 51, 62, 70**