DAY 1 ACTIVITIES

Activity 1 (Morning, Slide 53):
Here are the 39 values of San Francisco nickel effluent data, in numerical order (in rows of 10):
1.9, 2.0, 2.1, 2.1, 2.2, 2.2, 2.2, 2.3, 2.3, 2.3,
2.3, 2.4, 2.4, 2.4, 2.4, 2.5, 2.5, 2.5, 2.5, 2.6,
2.6, 2.6, 2.6, 2.7, 2.7, 2.8, 2.8, 2.8, 2.8, 3.0,
3.0, 3.2, 3.3, 3.3, 3.5, 3.5, 3.7, 3.9, 4.4

1. Create a five-number summary. (Remember, this is Low, Q_1, Median, Q_3, High)

2. Use the five-number summary to create a boxplot.

3. What can you conclude about the shape based on the boxplot?

Activity 2: Follow along with the R Commander instructions on your own laptop. See separate handout.

Activity 3 (Afternoon, Slide 26): Go to www.statpages.org
1. Explore the site. Note that some links do not work, and others redirect you, but there are many, many excellent resources!
2. Find the website that is used to "Detect Outliers." Enter the Benzene data and see if this method detects any outliers. Read about what test is used and how it works, and the discussion of what to do about outliers.
   Benzene data: 3.8, 35, 38, 55, 110, 120, 130, 180, 200, 230, 320, 340, 480, 810, 980, 1200
3. Try the Cambridge crew data: 188.5, 183, 194.5, 185, 214, 203.5, 186, 178.5, 109.

Activity 4 (Afternoon, Slide 45): Use R Commander to do the following.
1. Import the San Francisco nickel data:
   Data → Import data → From Excel, Access...
   Enter a name (e.g. Nickel), click "OK"
   Local files will pop up; find file "EnvStatData", click "Open", then in the pop up box "Select one table" click on "SFNickel"
2. Save the active data set: *Data → Active data set → Save active data set*
3. Create a histogram of the nickel data. Notice the shape.
4. Do a Shapiro Wilk tests for normality.
   Statistics → Summaries → Shapiro Wilk....
   What do you find?
5. Create a new variable called LogNickel by taking the natural logs of the nickel data.
   Data → Manage variables... → Compute new variable
   [Use variable LogNickel, expression Log(Nickel)]
6. Repeat Steps 3 and 4 on the transformed data. What do you find?