Using Calculators in Statistics

TI-83 Version 0.5

These are just basic directions for using a graphing calculator. We assume you will use a computer (e.g. with Data Desk) for larger activities. But it does help to understand basic use of your calculator for those times when you don't have a computer conveniently accessible.

Note that when we speak of buttons, depending on where the corresponding label is located on the keyboard, you may have to hit the *2nd* modifier before actually pressing the specific button. For example you enter the list **L1** by first hitting *2nd* followed by the digit 1. (Note that the label **L1** appears above the digit 1 on the keyboard.)

While we won't talk in general about calculator usage, note that buttons like *Clear*, *Quit*, *Ins* (insert), *Del* (delete), and the arrow keys are good for getting past confusing times when you may not know what your calculator wants you to do.

TI-83

The TI-83 is a graphing calculator with extra support for statistics. It uses lists to store data, and menus to choose functions for operating on the data.

There is a *Stat* button which lets one reach many statistical functions. These are listed under 3 menus which we will refer to as *Stat Edit*, *Stat Calc* and *Stat Tests*.

If necessary, first choose 5 under *Stat Edit* here, labelled as *SetUpEditor* to prepare to deal with stat lists **L1** ... **L6**.

These lists are reached for interaction by choosing choice 1 *Edit* from the *Stat Edit* menu. You can clear a particular list (e.g. **L1**) by navigating with¡ arrow keys to the top line of the list (e.g. the line labelled as **L1**) and then pressing the sequence of keys *Clear Enter*.

Data can then be entered into the lists by navigating to a row and typing in a number. When you press *Enter*, the cursor will advance to the next line. You can press *Quit* as well as many other buttons to leave the list editor.

To get 1-variable statistics on a list **L1** ... **L6**, first go to the *Stat Calc* menu, and then make choice 1, $1 - VarStats$, e.g. by hitting the number 1 followed by *Enter*. The line $1 - VarStats$ will now appear on your home screen. Follow it by the list name.

Note that the list names like **L1** and **L2** for *Xlist* and *Ylist* can be entered by just pressing the corresponding buttons above the numbers $1 \ldots 6$ on the keyboard.

Your home screen now has a line reading something like $1 - VarStats$ **L1**. Press *Enter* and the mean standard deviation, etc. for your list will be shown.

Getting 2-variable statistics is completely analagous, except that you choose menu item 2 on the *Stat Calc* menu, and announce 2 lists you wish to work with, leading eventually to something like $2 - VarStats$ **L1, L2** on your home screen.

Linear regression and correlation coefficients are available similarly by selecting item 4 on the *Stat Calc* menu. Actually, to see the correlation coefficients, you will once have to set *DiagnosticOn* from the *Catalog* list. You do this by hitting the *Catalog* button in the bottom row of the calculator, and then navigating with arrow keys to the line *DiagnosticOn*. Now hit *Enter* twice.

Probability distributions like the normal distribution are available from the *Distr* button. Typical syntax is something like $normalcdf(-3, -2, 0, 1)$ to find the area from $Z = -3$ to $Z = -2$ under the normal curve of mean 0 and standard deviation 1.

To create 2 dimensional graphs of data you have stored in statistical lists like **L1** and **L2**, first press the $Y=$ button, navigate with arrow keys, and then use *Clear* to get rid of any other functions you may have been plotting.

Now press the *Stat Plot* button and then select one of the graphs e.g. **Plot 1** to turn on by hitting *Enter*. Use the arrow keys to get to various choices and then hit *Enter* on each line when you want to accept that choice.

When you are happy with your choices, pressing the *Zoom* button followed by choice 9, *ZoomStat*, which will produce the graph.