STA 215 manual for using the TI-83/84

To enter quantitative data

STAT → EDIT

Clear out L_1 by putting the cursor above the list and hitting clear

Enter data in L_1 , making sure to hit enter after the last number

(If you can't access L_1, try doing: STAT → EDIT → SetUpEditor)

To compute $\bar{x}$ and *s* (for quantitative variables)

Enter data in L_1 as above

STAT → CALC → 1-Var Stats → L_1

To get a histogram or box plot (for quantitative variables)

Enter data in L_1 as above

2^{nd} → STAT PLOT (top row, above Y=)
Select one of the plots by hitting enter
Turn the plot on
Choose histogram (top row, far right) or box plot (bottom row, far left)

Make sure Xlist is L_1 and Freq is 1

ZOOM (top row, middle) → ZoomStat (#9)
(Turn the plot off when you are finished or it will cause problems with other graphs.)

To get a scatterplot (for One Quant Resp Var with One Quant Expl Var)

STAT → EDIT

Clear out L_1 and L_2 by putting the cursor above each list and hitting clear

Enter the *x* values in L_1 and the *y* values in L_2

2^{nd} → STAT PLOT (top row, above Y=)
Select one of the plots by hitting enter
Turn the plot on
Choose scatterplot (top row, far left)

Make sure Xlist is L_1 and Ylist is L_2

Choose the kind of mark you like
ZOOM (top row, middle) → ZoomStat (#9)
(Turn the plot off when you are finished or it will cause problems with other graphs.)

To get the equation of the regression line and correlation (r) (for One Quant Resp Var with One Quant Expl Var)

Enter the data into L_1 and L_2 as above

STAT → CALC → LinReg(ax + b)
(a is slope and b is y-intercept)
(if r isn't produced, then do 2^{nd} → CATALOG (above 0) → D (above x^{-1})
DiagnosticOn → Enter → Enter, and then repeat STAT → CALC → LinReg(ax + b))

To get areas (probabilities or p-values) under the normal curve (bell-shaped curve)

2^{nd} → DISTR (above VARS) → normalcdf (lower, upper, mean, sd)

To get areas (probabilities or p-values) under the t curve

2^{nd} → DISTR (above VARS) → tcdf (lower, upper, degrees of freedom)

To get areas (probabilities or p-values) under the χ^2 curve

2^{nd} → DISTR (above VARS) → χ^2 cdf (lower, upper, degrees of freedom)

To get areas (probabilities or p-values) under the F curve

2^{nd} → DISTR (above VARS) → Fcdf (lower, upper, degrees of freedom)

To access built-in calculator features for CI's or HT's

STAT → TESTS

Pick the appropriate CI or HT from list below

Note: I should caution you that the following does **not** check the necessary conditions for these confidence intervals or tests of hypotheses, (so you need to somehow do so separately):

For One Quant Resp Var with no Expl Var (including One Quant Resp Var measured twice, after taking differences)

CI: TInterval
HT: T-Test

For One Categ Resp with no Expl Var (note: *x* is numerator of $\hat{p}$ and *n* is denominator of $\hat{p}$)

CI: 1-PropZInt
HT: 1-PropZTest

For One Categ Resp Var with One Categ Expl Var

HT: Put the observed table into matrix A (MATRX → Edit → [A])

χ^2 -Test (the expected table will be automatically put into matrix B)

CI: 2-PropZInt (note x1 is numerator of $\hat{p}_1$ and n1 is denominator of $\hat{p}_1$, same for x2 and n2 and $\hat{p}_2$)

For One Quant Resp Var with One Quant Expl Var:

Put *x* into L_1 and *y* into L_2 (after first clearing these lists)

HT: LinRegTTest

Make sure Xlist is L_1 and Ylist is L_2

Choose the appropriate H_1 by highlighting $\neq 0$, < 0, or > 0

Hit calculate

The calculator will also give you the slope (b) and the y-intercept (a) for your sample. The p-value is next to p= , and the test statistic is next to t = .

In order to check assumptions for confidence intervals or hypothesis testing, you need to use the residuals, which are automatically created (when you do the LinRegTTest or LinReg(ax+b)) in a list called RESID. You can check the normality of RESID in whatever way you typically check normality. The RESID list can be accessed by hitting the LIST key, which is in blue above the STAT key.

However, to check constant variance, you must first create the predicted values. To do this, you have to feed the list that contains the x-coordinates of your points into the equation of the regression line, and save the outcome in another list. To do this, you first need to enter the equation of the regression line into Y_1 (as if you were going to graph the line). If you want to store the predicted values in L_3, first clear L_3. Then, on the main screen, type $Y_1(L_1) \rightarrow L_3$, where → is the STO key above the ON key. Now you can make a scatter plot where L_3 is on the x-axis and RESID is on the y-axis. (Y_1 can be found by hitting VARS, Y-VARS, and then Function.)

For One Quant Resp Var measured twice: See One Quant Resp Var with no Expl Var above (after taking differences)

For One Quant Resp Var with One Categ Expl Var with 2 categories (note: choose pooled = no; also note that the calculator will compute the degrees of freedom differently than you do by hand, so the p-value and CI from the calculator may not match your hand calculations)

CI: 2-SampTInt
HT: 2-SampTTest

For One Quant Resp Var with One Categ Expl Var with 3 or more categories

Put the samples into separate lists (L_1, L_2 , etc.)

HT: ANOVA($L_1, L_2, \ldots$)