Important formulas

Variance: step by step

1) implies a list of every observation $Y_1, Y_2, Y_3, \ldots Y_n$,
where n is the total sample size

2) The mean called & is the mean of the observations (all the "Y_i *s* ").
It is often written

3) The ' **"**

implies a list of (Y_i) from which the

These are the " of *each* Y_i from the mean Y.bar.
This is the "deviation" in

$$s^2 = \frac{\sum (Y_i - \bar{Y})^2}{n-1}$$

Variance 5) is the Greek letter "" and stands for .
The operation means "
Note that b/c of how the rules of algebra work, we actually square everything in the parentheses 1st, *then* sum it up

$$s^2 = \frac{\sum (Y_i - \bar{Y})^2}{n - 1}$$

6) The ""
Because we are **summing** up a set of **deviations** (point 3) that have been **squared** (point 4) what we get is called a "" or just "" for short.
The **SSD** is the numerator of this equation for the variance.

7)Divide by df
To complete the calculation of the variance we divide the **sums of squares** (SS) by n-1. This is called the

The [ ] (s^2) looks complicate but it is actually a bit like the **mean**. It involves a **summation** [ ] as the numerator and has the **sample size (n)** on the denominator (minus 1 to get the [ ]).

$$s^2 = \frac{\sum (Y_i - \bar{Y})^2}{n - 1}$$

[ ]

aka [ ]

[ ]

The [ ] (**SD** or just **S**) is just the **square root** of the [ ] The SD is "**standardized**" relative to the mean because taking the square root of the variance undoes the "[ ]".

$$s = \sqrt{\frac{\sum (Y_i - \bar{Y})^2}{n-1}}$$

[ ]