

CONSTRUCTING FREQUENCY DISTRIBUTIONS~LITE

1. Find the data range, that is, the difference between the largest and smallest observation. If in a given set of data the largest value was 245 and the smallest 133 then the data range becomes $245 - 133 = 112$.
2. Find the class width required to span the data range by dividing the range by the desired number of classes which we are using in this course *which is 10*. In the present example,

$$\text{Class width} = \frac{\text{data range}}{\text{desired number of classes}} = \frac{112}{10} = 11.2$$

3. Round off to the nearest convenient width which should be a *multiple of 10* in this course. In the present example, the nearest convenient width is 10.
4. Determine where the lowest class should begin. This number should always be a multiple of the class width in this course. In the present example, the smallest observation is 133, so the lowest class should begin at 130, since 130 is a multiple of 10, the class width.
5. Determine where the lowest class should end by adding the class width to the lower boundary and then subtracting one *unit of measurement*.¹ In the present example, add 10 to 130, then subtract 1, the *unit of measurement*, to obtain 139, the number at which the lowest class should end, i.e., the first interval would be 130-139.
6. Working upward [always LOW to HIGH starting at the BOTTOM and working to the TOP of the table], list as many equivalent classes (usually, but not always, a total of about ten) as are required to include the largest observation. In the present example, working upward, list 130-139, 140-149,.. 240-249, in which the last class, 240-249, includes 245, the largest observation.
7. Indicate with a tally the class in which each observation falls.
8. Replace the tally count for each class with a frequency and show the total of all frequencies at the bottom of the frequency column. Note: tally marks aren't usually shown in the final frequency distribution.
9. Supply headings for all columns and a title for the table.*

*Adapted from Witte & Witte, *Statistics*, 8th edition. New York: Harcourt 2007, p. 31

¹ The *unit of measurement* is the smallest possible difference between scores within a particular data set. Here that value is 1. If it were GPAs, it would be .01, etc.