

Video: “Error Bars with Unequal Wings in MATLAB” (3:50 min)

Median (0:00):

Now let's look at a couple of examples using the median as a measure of central tendency. I'll define `measlesByMonthMedian` using the `median` function and since it's by month it's along dimension 1. Measles mad or median absolute deviation is the `mad(measles,1,1)`. The first 1 indicates that this is the median absolute deviation rather than the mean absolute deviation and the second 1 is for dimension 1. We'll also calculate the interquartile range. This is the difference between the data value of the 75th percentile and the data value at the 25th percentile. We use the IQR to illustrate another form of error bars. Since the distance between the 75th percentile and the median and the 25th percentile and the median are often not the same, we can have error bars of unequal length. Let me just make a copy of the code I had for a previous figure and modify it.

New Errorbar (1:19):

I'll change the documentation. I no longer need the `years` argument because I'm plotting against the x-values 1-12. I also need to change the names of the variables. Since I'm going to be using the asymmetric form of the error bar, I need to define the lengths of the lower and upper error bar respectively. I'm going to start with the lower. It's going to be the difference between the median and the 25th percentile, I'll define a variable for it called `lowerDist`. The length of the upper error bar is going to be the difference between the 75th percentile and the median. I need to replace the single error bar length with a lower length and an upper length. Let me also correct the `xlabel` while I'm at it. I save, I execute and I see my graph. Again, I have a scale problem and I'm going to need to set the x-values. This time I have to explicitly set them to 1 to 12. I'll create a new variable called `xPositions` with the values 1:12 as the x values. I save and execute and I see that my graph now has proper scale. I still have some adjustments to do to finalize the graph, but I'm essentially there.