Video: "Basic Error Bars in MATLAB" (4:14 min)

Load the Data (0:00):

We have already set up a folder for the lesson and created a lesson 6 script and have downloaded the New York City Diseases data.

Compute Overall Mean and Std (0:09):

We begin by calculating the overall mean and standard deviation of the measles data. We define a variable, measlesAver and use the mean function for the average. It will be mean(measles(:)). The (:) or linear representation is putting measles into a single column. Similarly, we calculate standard deviation using the std function. Again we use the (:) notation for the linear representation. We save and execute and we get an error, measles is not defined. This is because we did not execute the first cell to load the data. We re-execute and now we have the variables that we want. Measles mean and measles standard deviation are single values because we are getting overall values.

Show with Errorbar (1:09)

Now we'll use error bars to show the mean and standard deviation on a graph and be forewarned this graph is going to look a little strange until we work on it. We create a figure and use the error bar command. The first argument of errorbar is the center point, which is going to be measles. The second argument is the length of the error bars. We execute and see a very strange looking error bar. One problem with the graph is it actually didn't show the measles average as the center point of the error bar. We have to put it in explicitly because by default, matlab does not show plot markers.

Creating Mumps Variables (1:53)

Before I tackle the problem with the error bar scale, I'm going to add another errorbar to the graph, so I only have to rescale once. I'm going to add the mumps mean and standard deviation as a second error bar. I define variables for them using the same scheme as before. Let me go ahead and add the second error bar before executing. I'm going to have to put a hold on and hold off because there are 2 plots. My second error bar is going to display mumpsAver and mumpsSD. I better change the plot marker too and of course I need to add the hold off. When I save and execute I notice that mumpsAver is not defined. This is because I did not save and execute the second cell after I made the changes. I save and execute and the resulting plot has 2 over laying bars and look at the x-scale it's very close to 1.

Fixing the Error Bar (3:05):

Error bar has another variation in which the first argument is the x position. Here I position the 2 error bars at 1 and 2 respectively, it looks much better. Let me finish off by adding a xlabel, a ylabel, and a title. While I'm at it let me rescale the variables to cases in thousands. When I save and execute I see the x-axis still has fractions and it should really have labels like measles and mumps similar to bar charts. I'm going to use the set gca to accomplish this. I'm going to set both the x ticks and the x tick labels. I'm going to set the x ticks to 1 and 2 and the x

tick labels to be measles and mumps but first I have to set the modes to manual to tell MATLAB to not to change them after I set them. I save and execute, and I see a completed error bar graph.