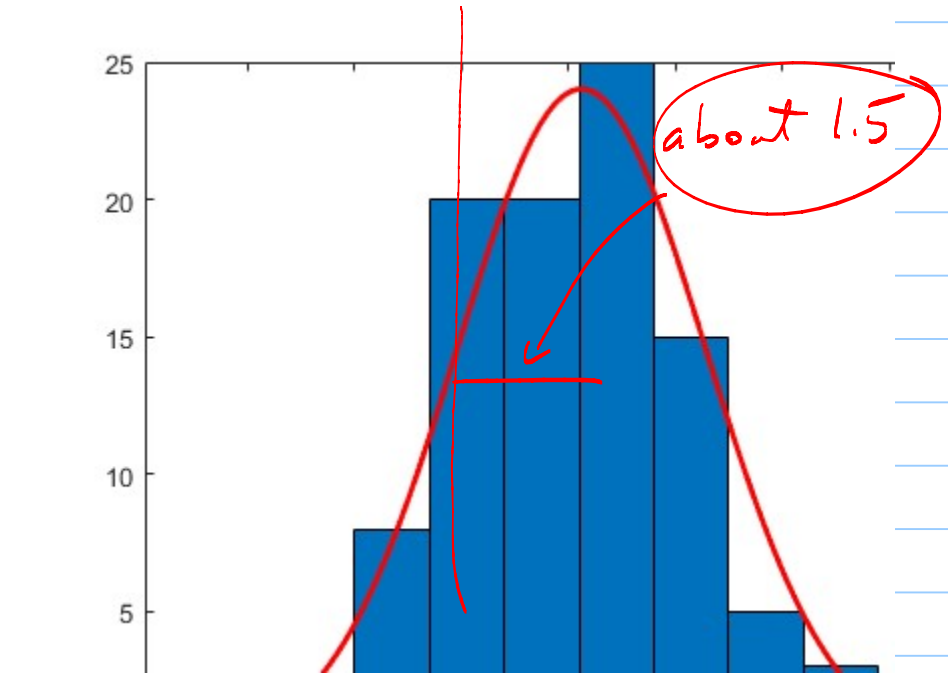
hw_lect1_1:
Google the string "normal histogram" and select Images. Choose the first image you see, and tell me how wide it is. Include the image itself in your submission.

This is what I got ↘



hw_lect2_1
Come up with 2 examples for each of the three types of variables (continuous, discrete, categorical). As discussed in this lecture, the type of a variable cannot be determined without the actual data, ie. the type depends on the specifics of data. Here, however, ignore that complexity, and base your answer on theoretical considerations (ie. based on what you know about that variable).

The answer will vary by student, but here are some answers:

Cont: height & weight of people.

Discrete: # of siblings & # of face book friends.

Categ: Smart Phone brand of students in Stat 390.
&
The favorite browser of " " " "

hw_lect2_2

Construct a data set with the following specifications ...

The answer will vary across students, but

The important thing to realize is that these concepts are fuzzy. The easy distinction is between qualitative/categorical and other types (ie. discrete and continuous). It's easy, because in the former, the levels will not even be numerical.

The harder/fuzzier distinction is between discrete and cont.

First, whether something is continuous or discrete depends on what the variable is. For example, things like height, weight, time, are all continuous; and things like the # of heads (out of n tosses), # of girls out of a sample of size n, are discrete.

However, the data you have collected also has something to do with it, too. Here are 2 extremes.

Extreme 1: A continuous variable is observed 30 times, but there are only 2 distinct/different values. Then, given such data, that variable should be treated as discrete.

Extreme 2: A discrete variable is observed 30 times, and it happens that all 30 values are distinct/different. Then, given that data, this variable may be treated as a continuous variable.

Looking at lists, with different values for breaks, can be helpful in deciding.

hw_lect3_1

For each of the following shapes, come-up with at least one example of a random variable x (continuous or discrete) whose histogram you expect to be approximately

a) Bell-shaped (symmetric)

b) Skewed (one way or the other)

c) Exponential-looking

d) Bimodal

Make sure you describe/define the random variable clearly (like we did in the lecture), and explain in words why you expect the particular shape. If you have data to support your expectation, then show the histogram.

a) x = Height. We expect the histogram of height to be bell-shaped, because we expect few very short, and few very tall people, with the majority in the mid-range.

b) x = Number of children per family. We expect the hist of this x to be bell-shaped for the same reason as in a). But we expect it to be skewed, because there will be some number of families with $x = 4, 5, 6$, even 14 children.

c) x = Time between phone calls coming into a call center. We expect there to be many calls that are, say 1 second, apart, even fewer calls that are even farther apart, etc.

d) x = Amount of annual rain across the U.S. This is bimodal because the amount of rain East of the Rockies is considerably more than that west of the Rockies.

hw_lect3_2

In this lecture there are many examples of random variables that, when considered as quantitative, have an exponential-looking histogram. Identify one of the random variables, and plot its relative frequency histogram. Hint: The relative frequencies are, in fact, in this lecture, too.

Caren Marzban Other SP16

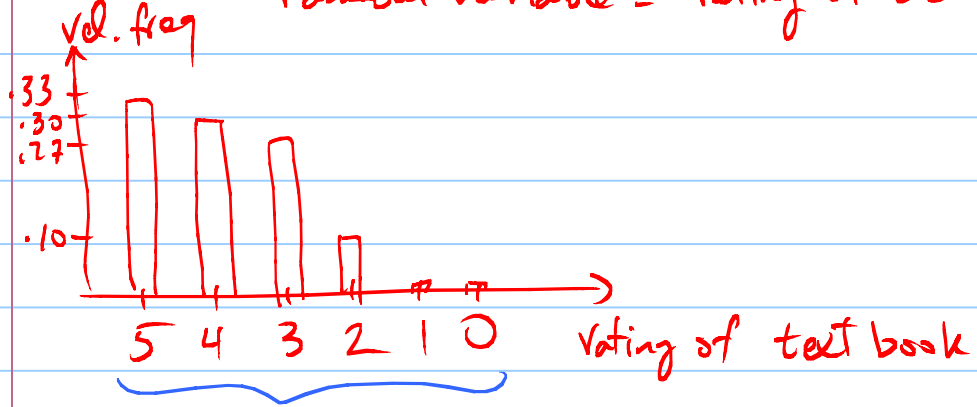
Form G: Lecture -- Assignments "61" surveyed "124" enrolled

Question	Excellent	Very Good	Good	Fair	Poor	Very Poor	Median
The course as a whole:	27%	33%	22%	12%	3%	3%	3.80
Textbook overall:	33%	30%	27%	10%	0%	0%	3.94
Instructor overall:	50%	28%	10%	7%	2%	3%	4.50
Instructor's contribution:	42%	27%	15%	8%	3%	3%	4.22
Instuctor's interest:	53%	26%	7%	5%	2%	7%	4.56
Amount learned:	39%	27%	20%	8%	3%	2%	4.09
Relevance and usefulness of homework:	37%	17%	27%	12%	3%	3%	3.75

For median calculation: 5 = Excellent 4 = Very Good 3 = Good 2 = Fair 1 = Poor 0 = Very Poor

Any of these will do. So, one answer is:

random variable = rating of textbook



FYI: one may argue about this unusual ordering of the numbers, but recall that we can always denote "Excellent" as 1, "Very Good" as 2, etc. That assignment of numbers to levels is arbitrary.