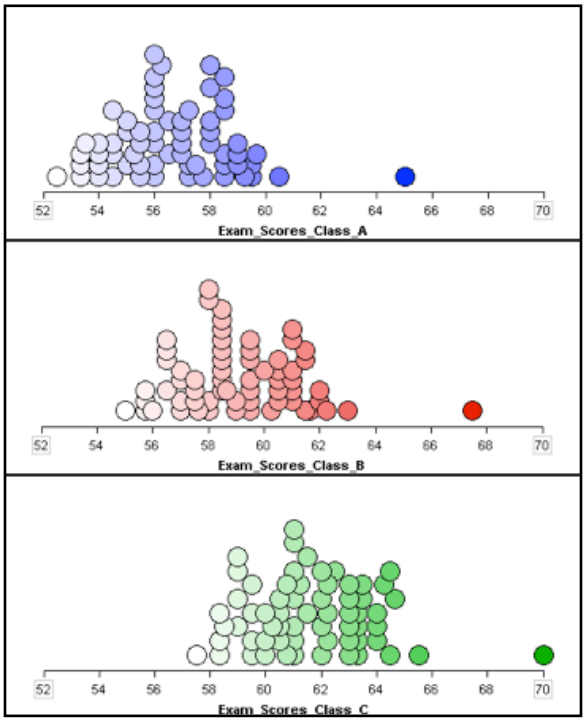
# Features of Distributions

Imagine multiple sections of the same college course, taught by different instructors. Below are a series of plots that depict the distributions of hypothetical exam scores in various sections.

1. Examine the three distributions of exam scores for classes *A*, *B*, and *C*. What are the primary differences between these three distributions? What are potential factors that might explain the differences?

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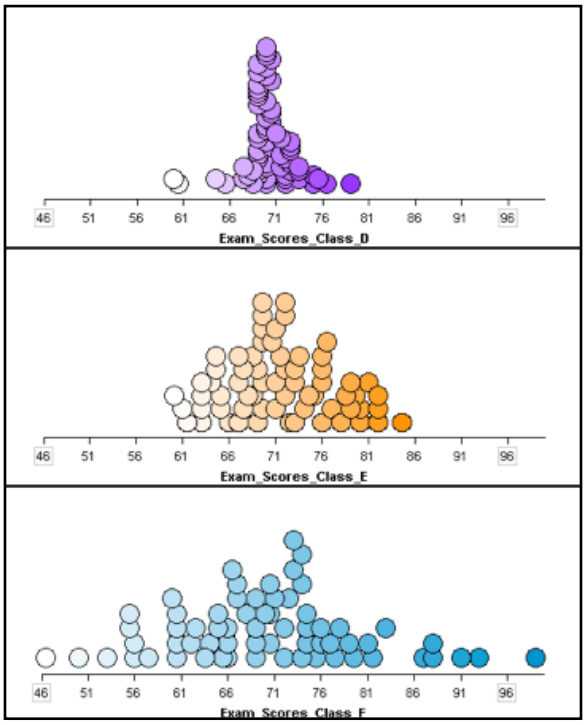
2. Examine the three distributions of exam scores for classes *D*, *E*, and *F*. What are the primary differences between these three distributions? What are potential factors that might explain the differences?

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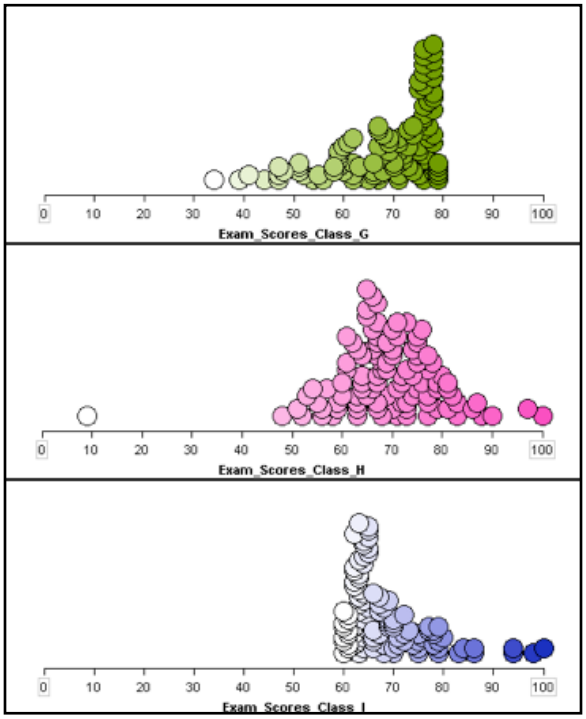
3. Examine the three distributions of exam scores for classes *G*, *H*, and *I*. What are the primary differences between these three distributions? What are potential factors that might explain the differences?

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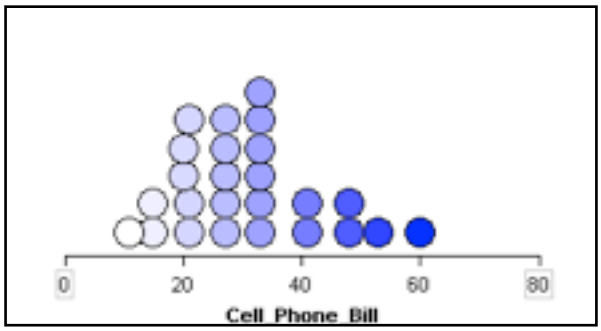
## Cell Phone Bills

Consider a survey study conducted on a random sample of 25 University of Minnesota students. One survey item asked students to self-report the amount of his or her last cell phone bill (in dollars). The plot of the bill amounts is shown below.




4. If you wanted to tell someone the amount of a "typical" cell phone bill for these students, what would you say?

5. How would you describe (quantify) the *overall* amount of variation in the distribution (i.e., for all 25 cell phone bills)?

6. How far do cases typically vary from the value that you identified in Question 4?

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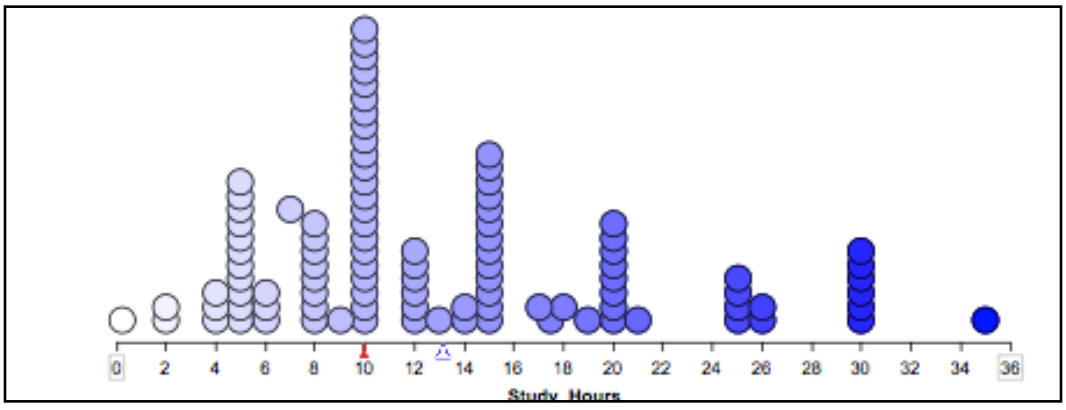
7. What is a potential factor(s) that might explain the variation in these bills?

8. Using the typical cell phone bill you identified previously as a reference point, consider the amount of variation in the distribution on both sides of this point. Is the variation roughly the same on the left- and right-hand side of this point? Is there more or less variation on either side of this value?

## Number of Hours Studied

The plot below contains responses from 100 EPsy 3264 students who responded to the survey question: "How many hours per week do you typically study?" These students' responses are a random sample from all responses obtained from all classroom sections of EPsy 3264 taught from 2004–2010. Examine the plot of these data.

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9. What does each dot (i.e., case) in the distribution represent?

10. Summarize the features of the distribution. Be sure to identify the **"typical"** amount of time spent studying and the **variation** in the amount of studying. (When describing the variation, you should quantify the "average" amount of deviation from the typical value.) You should also indicate the **shape** of the distribution.

11. What is a potential factor(s) that might explain the variation in these data?

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