

Alan Rossman's First Day of Class

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Typical Data Set:

Collection 1

	State	Clas...	Gender	Age	Handed	Height_cm	Footlen...	Armspa...	Trave...	Lan...
1	IN	10	Female	15	Ambidex...	154	23	154	Car	2
2	IN	10	Female	15	Right-Ha...	158	24	145	Car	1
3	IN	10	Female	15	Left-Han...	164	24	162	Bus	1
4	IN	10	Female	17	Right-Ha...	171	25	155	Car	2
5	IN	10	Male	15	Right-Ha...	173	24	165	Bus	2
6	IN	10	Female	16	Right-Ha...	180	24	179	Bus	1
7	IN	10	Female	15	Right-Ha...	160	21	153	Bus	1
8	IN	10	Female	15	Right-Ha...	184	28	186	Car	1

1. Name some variables. Are they quantitative, categorical, ordinal, etc.?
2. "Are Males taller than Females?" is a _____.
3. The mean male height is a _____.
4. "Left-handed" is a _____.
5. What are the observational units (also known as _____)?

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- “Students tend to make some common mistakes with this that I like to address head-on right away. For instance, three common mistakes involve confusing a variable with a research question, with a statistic that summarizes the distribution of the variable, and with an individual category of the variable. Another misconception to be confronted early is the tendency to think that observational units are always people.”

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Example #1:

Consider the students in this class as the observational units in a statistical study. For each of the following variables, indicate whether the variable is categorical or numerical.

1. How many *Harry Potter* books have you read?
2. Have you ever been outside the United States?
3. What would you guess for the instructor's age?
4. How many units of classes are you taking this quarter?
5. On what day of the week were you born?
6. Do you consider yourself an "early bird" or a "night owl"?

Example #2:

Continue to consider students in this class as the observational units in a statistical study. Explain why the questions in #1-4 are not variables.

1. What is the average number of *Harry Potter* books read by a student in this class?
2. What percentage of students in this class have been outside the United States?
3. Have female Cal Poly students read more *Harry Potter* books, on average, than males?
4. Do the percentages of Cal Poly students who have been outside the U.S. differ among the colleges?
5. What would the *observational units* have to be in order for these questions in #1 and #2 to be legitimate variables? (*Hint: The observational units would not be people.*)

Example #3:

We will study examples that address the following statistical questions in this course. For each one, identify the observational units and variable(s). Also classify each variable as numerical or categorical.

1. How much did an average American consumer spend on Christmas presents in 2013?
2. Are Reese's Pieces candies equally likely to be orange, brown, and yellow?
3. Do college students who pull all-nighters tend to have lower grade point averages than those who do not pull all-nighters?
4. Do cars driven by students on your campus tend to be newer than cars driven by faculty on your campus?
5. Can you predict how far a cat can jump based on factors such as its length and weight and takeoff velocity?