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Math 171-50
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Our experiment tested to see what proportion of Longwood University students enrolled in MATH 171 and MATH 301 smoke tobacco. This question was chosen because both of our families have a long history of smoking. It was also chosen in part because we are curious about how many people our age smoke. We suspect that less than 20% of the sample will smoke tobacco. We suspect the lower percentage is due to the smoking age in Virginia being recently raised to 21.

A simple random sample is when each person, or object, is just as likely to be chosen as another. We did this by numbering all of our data starting at one until we got to the end. We then took the calculator we were using which happened to be a TI-84. We decided to use randInt() on our calculator. This allows us to tell where we want to start, stop, and how many random numbers we want it to give us. RandInt() is located under the MATH button on the calculator where we scroll over to PRB and number five on the list is randInt(). To get our simple random sample we used randInt(1, 311,30), because we started at one, ended at 311, and wanted a sample size of 30.

Appendix:

#	Sex	Class	Smoke
294	Female	Senior	Rarely (couple of times per year)
283	Male	Sophomore	Rarely (couple of times per year)
46	Male	Sophomore	Never
161	Female	Junior	Never
127	Female	Freshman	Occasionally (couple of times per month)
229	Female	Junior	
14	Female	Freshman	Never
106	Male	Freshman	Never

310	Female	Freshman	Never
63	Male	Freshman	
249	Male	Junior	Never
297	Female	Sophomore	Never
69	Male	Freshman	Never
115	Female	Sophomore	Never
3	Male	Senior	Never
291	Female	Senior	Never
34	Female	Freshman	Never
2	Female	Sophomore	Never
171	Male	Junior	Never

267	Female	Junior	
304	Female	Junior	
87	Female	Sophomore	Never
86	Male	Senior	
38	Male	Junior	Never
17	Female	Sophomore	Never
225	Male	Junior	
4	Male	Junior	Regularly (daily)
131	Male	Junior	Never
96	Female	Freshman	Never
303	Female	Sophomore	Rarely (couple of times per year)

This is an observational study. It is observational because only data was collected there was only measuring going on and the outcome is not being influenced.

Since our study received no response from 63, 86, 225, 229, 267, and 304, our study has nonresponse bias for those 6 individuals. Nonresponse bias is when individuals don't respond to survey questions for reasons such as; lack of interest and being inconvenient. On July 1.2019, the smoking age in Virginia was increased from 18 to 21 years of age. The change could have had an influence on the way individuals under 21 responded to this question.

Our simple random sample does not represent the entire population of Fall 2019 students in Math 171 and Math 301 because we have nonresponse bias, and therefore, don't have complete data. Without having complete data it is difficult to estimate for all Math 171 and Math 301 students. This data cannot represent 2016 to 2020 students because the data we have is only for the Fall 2019 semester. Also, it cannot represent in the future due to the recent change in the smoking age.

More females were interviewed because of the higher ratio of females to males in Math 171 and Math 301 classes. In our sample, the ratio of females to males is 17:13. At Longwood, as a whole, 68% are female and 32% are male. In our sample, 57% are female and 43% are male. Also at Longwood, the undergraduate classes consist of: 26% freshmen, 23% sophomores, 22% juniors, and 29% seniors. In our sample, 27% were freshmen, 27% were sophomores, 33% were juniors, and 13% were seniors. There are more females at Longwood, so there would, in most classes, be more females than males in undergraduate classes. Our sample contained 13% of seniors which does not equally represent Longwoods population due to that being at 29%. Since the senior percentage decreased in our sample so dramatically one had to go up; the one that went up was the junior percentage. The junior percentage at Longwood is 22% and in our sample, it was 33% which is substantially bigger. The junior percentage in our sample was also the biggest one. This can also come from the number of juniors that are signed up for the courses.

This data cannot be used to make assumptions about Math 171 and 301 students who took the survey because not all students gave a response to this question. As shown in our Appendix, one-fifth of the students in our sample did not give a response to this question.

In our sample, there was a higher amount of females which is the same in the population data. In the sample there are 17 females out of 30 and in the population, there are 215 females out of 311. Since the population of females was higher, there were fewer males. In our sample, there were 8 freshmen, 8 sophomores, 10 juniors, and 4 seniors. In all Math 171 and 301 students, there were 96 freshmen, 98 sophomores, 85 juniors, and 44 seniors. It is similar to the ratio of our sample but not as representative as it could be.