Math 171 Sampling Project

Jessica Schaub

Emerson-Stonnell Math 171-07

A simple random sample means that everyone is as likely to be chosen in a sample as the other. To create a simple random sample for survey answers from students who are registered for Math 171 courses in Fall 2015, I assigned each student a number. I labeled the students from 1 to 503. I then used my calculator to determine a simple random sample of the data. To do this, I went to math, then probability, then random integer. I inputted the minimum number of students which was one, then the maximum number of students which was 503, then the number of samples that needed to be randomly selected. In this case, 50 students needed to be selected. The calculator randomly selected 50 numbers from 1-503 and it outputted 4, 7, 15, 22, 23, 27, 44, 55, 58, 59, 62, 74, 100, 101, 104, 112, 121, 126, 139, 140, 152, 155, 158, 171, 186, 201, 205, 212, 259, 277, 311, 319, 351, 364, 365, 370, 402, 422, 431, 457, 466, 471, 475, 476, 479, 490, 492, 496, 501, 502.

 An observational study is used to observe a population, which involves not assigning a treatment to the sample that may impact the results. This is different from an experimental study because an experimental study has a group that is being tested and a control group that is not being tested. After this, the investigator can determine if a treatment worked or if it did not work. In an observational study, the researcher does not try to manipulate the outcome of the study, instead a population is simply measured how it is. This study is considered observational because there are no outside influences that are purposely being put onto the students to make them choose certain survey answers, it was simply the students’ opinion.

 A population is simply everyone, and to study a population people use a sample to select a small group of people to study instead of the entire population. The population for this example is all of the students taking Math 171 this Fall 2015 Semester, and the sample is the 50 students who were randomly selected by the simple random sample.

The population of this survey is all of the Longwood students taking Math 171 this Fall Semester. Therefore, this data can only represent Longwood students taking Math 171 the Fall Semester of 2015. If someone wanted to assume that the info from this survey could represent the entire Longwood Student population, it would not be accurate. This is because only students who took Math 171 were surveyed. There were no other students in any other class surveyed. Not everyone in college is required to take a Stats class, so this represents only a select group of people. Students taking Math 171 usually have this course required for their major or are interested in Statistics. Therefore, the sample of students form Math 171 is too selective and too small to represent all of Longwood. This is the same for the whole Virginia college student population and the general United States population. The sample from Math 171 could not be used to make good assumptions on the survey answers for the Virginia college student population because the sample is only from Longwood University, one type of class, and one semester. To ensure a better sample and to make it more reliable, a simple random sample of students from different colleges in Virginia and classes in those colleges would have to be surveyed. This sample from Math 171 would also not be reliable for the general United States population because, for the same reasons as the Virginia college population, the sample is only one class, one location, and on age group. If a simple random sample of people across the United States were surveyed, then the assumptions would be much more accurate. To get a more clear data representation, data would need to be collected over several years from all age groups across the nation. To continue, questions such as the math ability rating and stats interest rating might tend to be higher in this survey because only students in statistics were surveyed, meaning there might be more people who are majoring in math or are more interested in math. Since the ratings will be higher due to this, this data cannot accurately represent Longwood’s population, Virginia’s college population, or the United States population.

Appendix

