

## QUESTION #40

# What Is the Difference Between a Sample and a Population, and Why Are Samples Important?

**S**amples are selected from populations.

A population is the total of all the individuals who have certain characteristics and are of interest to a researcher. Community college students, race car drivers, teachers, college-level athletes, and disabled war veterans can all be considered populations. Because sampling is not a perfect part of science, there are often differences between the values of a sample and the values of a population. This is called sampling error, and it is the researcher's duty to minimize this type of error.

A sample is a subset of the population. In the above example, only community college students in three schools in New Hampshire would constitute an appropriate sample, as would only veterans who incurred a specific type of injury during the Vietnam War.

The reason why samples are important is that within many models of scientific research, it is impossible (from both a strategic and a resource perspective) to study *all* the members of a population for a research project. It just costs too much and takes too much time. Instead, a selected few participants (who make up the sample) are chosen to ensure that the sample is representative of the population. And, if this is the case, then the results from the sample can be inferred to the population, which is exactly the purpose of inferential statistics—using information on a smaller group of participants to infer to the group of all participants.

There are many types of samples, including a random sample, a stratified sample, and a convenience sample (more about those later), but they all have the goal of accurately creating a smaller subset from the larger set of general participants such that the smaller subset is representative of the larger set.

*More questions? See #39, #41, and #42.*