



# Sampling for the Assessment of Student Learning Outcomes

---

Below is an overview of key sampling concepts along with several recommendations for those seeking to assess Student Learning Outcomes (SLOs) or Service Area Outcomes (SAOs). It is unlikely that there is one right answer to the sample size or technique that should be used, but we hope that these recommendations and notes for consideration will guide you as you conduct your assessments.

## **Census vs. Sampling**

Assessing the entire population is called a **census**, whereas assessing a smaller subset of the population is called a **sample**.

## **Key considerations**

When deciding whether to conduct a census or collect a sample, or when deciding how large your sample should be, there are several key items to consider.

1. **Class or program sizes** – If the program or course has a small number of students, it may be best to conduct a census. However, if there are a large number of students in the target population, a sample may be best.
2. **Length and complexity of artifacts** – If the artifact assessed is relatively short or easy to score, then it may be feasible for a larger number of students to be assessed. However, assessing some artifacts may be more time consuming due to length, necessity to norm grading scales, other factors, or some combination thereof.
3. **Size of the faculty panel reviewing artifacts** – The number of faculty members reviewing artifacts can have a large impact on the number of students that can feasibly be assessed. If the artifact is short and easy to assess, then fewer faculty members would be needed to assess a large number of students.

## **Sample size recommendations**

In general, when attempting to obtain an accurate estimate of a population, the larger the sample, the better the estimate. However, the factors noted above can impact the feasibility of obtaining a large sample of students. Our recommendation is to aim for as large of a sample as is reasonable.

## **Recommended minimum sample sizes**

Despite the desire to recruit and assess the entire student body within the program, this may not be feasible. Therefore, we are providing general guidelines for the minimum number of students that should be sampled. **At minimum, we recommend that a sample consist of 10 students, or 10% of the population of interest, whichever is greater.**

## **Sample selection techniques**

Below are some brief descriptions of some common sampling techniques as well as some things to consider when choosing a sample selection technique (more info here:

[http://en.wikipedia.org/wiki/Category:Sampling\\_techniques](http://en.wikipedia.org/wiki/Category:Sampling_techniques)).

**Simple random sampling** – Sampling is done by randomly selecting a certain number of students or artifacts. Each student or artifact has an equal chance of being selected. With a large enough sample size, this technique may give the greatest confidence in generalizing to the population. Here is a useful tool for selecting students at random: <http://www.random.org/lists/>. You can paste in a list of student names, click “randomize,” then select the top 10 (or 15, or 20, etc.) students.

**Stratified sampling** – Students or artifacts are sorted into specific subgroups (e.g., by gender, ethnicity, major, day vs. evening, etc.), then a random sample is selected from each group. This may be a useful tool for when you want to ensure that certain groups are represented in your sample.

**Systematic sampling** – You select students based on a pre-determined order. For example, select every  $n^{\text{th}}$  (e.g., 3<sup>rd</sup>, 5<sup>th</sup>, 10<sup>th</sup>) student or artifact from a list. This approach may be more feasible than simple random sampling. However, it is important to consider how the order of students or artifacts may impact your findings.

**Cluster sampling** – Groups or clusters (typically classes or sections), and then all students within that cluster are evaluated. This approach may be useful when the assessment is best administered to an entire section rather than random students. However, it is important to consider the variation that can happen between different sections and instructors.

**A note on convenience sampling** – Convenience sampling is when a sample of students or artifacts is based on those who may volunteer or respond to a survey. Sometimes, this is the only way we can obtain responses. However, it is always important to consider that there may be important differences between those who agree to participate and those who don't. This should be considered when asking students to complete surveys or assessments, or if only a few faculty volunteer to have SLO assessments incorporated into their course curriculum. These differences may impact your ability to generalize your findings to the population of interest.

### **Considerations**

When choosing a sampling strategy, it is always important to consider what implications the strategy may have on your ability to generalize your findings to the rest of the population. This should also be balanced with issues of feasibility. For example, whereas a simple random sampling of students may give us the best chance of generating a representative sample, there may be issues of access or sample size.

Whenever possible, we recommend comparing key demographics of the students sampled to the population of interest (at the course, program, or other level) to get an estimate of how representative the sample population may be.