Online course learning objectives
This course introduces the fundamentals of selecting a sample for research involving human participants. It will provide you with a clear understanding of why samples are needed, an overview of common sampling techniques, and information around ethical research and minimizing bias.

This course will help learners to:

- Understand the concept of sampling in research
- Grasp the ethical considerations in participant identification and contact
- Address challenges posed by ill-defined, wary, and hard-to-reach populations
- Define sampling variance and bias, and comprehend their distinctions
- Identify how sampling frames and non-response contribute to bias
- Understand the impact of sample size on sampling error and statistical power
- Assess strategies for drawing valid conclusions from imperfect samples to the broader population

Language: English
Time to complete: 3 hours
Level: Beginner
Instructor: Paul Silvia

Online course full syllabus

MODULE ONE: WHAT IS SAMPLING?
The craft of sampling involves balancing what's ideal (what sampling theory shows is best) with what's realistic (what's legal, ethical, and practically possible given the time and resources available).

Our focus is on selecting samples for smaller-scale projects with human participants. You might one day conduct massive population-level surveys or high-stakes political polling, but I'm assuming that you're not starting with such grand projects!

In this first module, let's dive straight into the basics of samples and populations.

This module will help you to:

- Distinguish between populations, samples, and elements
Sampling for Beginners

- Explain the relationship between samples and populations
- Create a focused, specific definition of a population of interest
- Evaluate the usefulness of samples from existing dataset

MODULE TWO: WHAT ARE COMMON SAMPLING METHODS?

Researchers have developed many ways to select a sample, but the methods divide into two main groups: probability and non-probability sampling.

In this module, we'll explore sampling methods in greater depth. As we'll see, the craft of sampling is a balancing act. What's ideal scientifically isn't always practical or ethical in the real-world trenches of research.

We'll begin with a closer look at probability sampling, before moving on to non-probability sampling.

This module will help you to:

- Describe the difference between probability and non-probability sampling
- Explain the role of sampling frames in probability sampling
- Recognize the different kinds of non-probability sampling
- Describe the limitations and virtues of convenience sampling methods

MODULE THREE: WHAT ARE THE PRACTICAL AND ETHICAL CHALLENGES OF SAMPLING?

Research “gets real” once we start recruiting members of the population to participate in our research project. As we’ve seen throughout this course, the ideals of sampling theory must be balanced against the reality of ethical and practical constraints.

This module considers important ethical and practical issues that arise when recruiting human participants. Ethical sampling requires us to consider the risks that might follow from identifying and contacting members of our population.

Some populations—those that are ill-defined, hard to reach, and wary—are particularly challenging to sample, so this module also introduces techniques to involve these participants.

This module will help you to:

- Detect ethical issues related to identifying and contacting potential participants
- Describe the distinct challenges posed by populations that are ill-defined, wary, and hard to reach
Sampling for Beginners

- Evaluate the virtues and limitations of snowball sampling methods

MODULE FOUR: HOW CAN I REDUCE ERRORS AND BIAS IN SAMPLING?
This module delves into sampling error, a broad category that captures different ways that our sample can stray from the broader population.

We'll learn the major causes of the two main categories of sampling error: sampling variance and sampling bias. We'll also describe ways that researchers can prevent, reduce, and understand these errors.

We'll then close the module with an introduction to considerations around sample size, and how this is balanced with ethical and practical requirements.

This module will help you to:

- Define sampling variance and sampling bias and describe the differences
- Describe how sampling frames and non-response create bias
- Develop strategies for reducing sampling error and sampling bias
- Explain how the size of a sample influences sampling error and bias