



# Sampling from a Normal Distribution

Title

Summary

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This web visualization demonstrates the concept of a sampling distribution of an estimate, using the example of a mean of a Normally distributed variable. It also reinforces the idea of a histogram.

Thumbnail

Resource URL: <http://www.zoology.ubc.ca/~whitlock/Kingfisher/SamplingNormal.htm>

This resource is an interactive visualization, hosted at [www.zoology.ubc.ca](http://www.zoology.ubc.ca).

About This Resource

Files

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Under the "Files" tab, the user will find files that the contributor has provided (thumbnail file first!).

## Prerequisite Knowledge

- Familiarity with methods of summarizing data sets, such as mean and standard deviation
- The ability to recognize probability models as distributions with shape, centre, and spread
- The ability to recall the key properties of the Normal model

## Learning Objectives

- Identify and distinguish between a population and a sample, and between parameters and statistics
- Interpret histograms for summarizing and comparing data sets
- Explain the concepts of sampling variability and sampling distribution
- Describe properties of the sampling distribution of the sample mean
- Explain whether and how the population distribution and the sample size influence the sampling distribution of the sample mean from a Normal distribution

## Description

**Funding:** University of British Columbia

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The contributor entered 3 related resources that are not ones that he had contributed to StatSpace. They appear here.

### Creator

Whitlock, Michael

### Subject

Sampling Distributions > Sample Mean

### Resource Type

Web Visualization (Applet)

### Related Resource

Making the most of demonstrations, videos, animations, or simulations in lectures and laboratories

French translation: Echantillonner une loi normale

Spanish translation: Muestreando de una distribución normal

### Date Approved

Jan 22, 2019, 10:00:55 AM

### Access

Everyone

## Suggested Uses, Tips and Discoveries

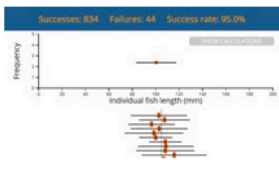
These web visualizations are intended to be used in a number of ways:

- as a visual aid during lectures;
- as an open-ended learning tool for active learning;
- as a guided learning experience, using either the built-in tutorials, guided activity sheet, or other instructor-supplied material.

We learned a lot about this resource from trialling with students. The sampling distribution is a complex concept. For instance, from our teaching, we have found that students often confuse the histogram of values from a random sample and the histogram of sample means from many random samples. [Read more.](#)


## Related Resources

The contributor entered related resources that he previously contributed to StatSpace. They are shown here.



**Confidence intervals for the mean**

This web visualization shows the meaning of a confidence interval, calculating confidence intervals of the means of repeated samples.



**Sampling from a non-Normally distributed population (CLT)**

This web visualization explores the sampling distribution of the mean when the data do not necessarily follow a Normal distribution.