

IPS9 in R: Sampling distributions (Chapter 5)

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Introduction and background

These documents are intended to help describe how to undertake analyses introduced as examples in the Ninth Edition of *Introduction to the Practice of Statistics* (2017) by Moore, McCabe, and Craig.

More information about the book can be found [here](#). The data used in these documents can be found under Data Sets in the Student Site. This file as well as the associated R Markdown reproducible analysis source file used to create it can be found at <https://nhorton.people.amherst.edu/ips9/>.

This work leverages initiatives undertaken by Project MOSAIC (<http://www.mosaic-web.org>), an NSF-funded effort to improve the teaching of statistics, calculus, science and computing in the undergraduate curriculum. In particular, we utilize the `mosaic` package, which was written to simplify the use of R for introductory statistics courses. A short summary of the R needed to teach introductory statistics can be found in the mosaic package vignettes (<http://cran.r-project.org/web/packages/mosaic>). A paper describing the mosaic approach was published in the *R Journal*: <https://journal.r-project.org/archive/2017/RJ-2017-024>.

Chapter 5: Sampling Distributions

This file replicates the analyses from Chapter 5: Sampling Distributions.

First, load the packages that will be needed for this document:

```
library(mosaic)
library(readr)
```

Section 5.1: Toward Statistical Inference

Section 5.2: The Sampling Distribution of a Sample Mean

Example 5.5: Sample means are approximately Normal

Section 5.3: Sampling Distributions for Counts and Proportions