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October 4, 2022

ECo 634 Lab: Michael France Nelson

Lab 4

1. pop\_sd = 2.4

pop\_mean = 10.4

norm\_17 = rnorm(n= 17, mean= pop\_mean, sd= pop\_sd)

norm\_30 = rnorm(n= 30, mean= pop\_mean, sd= pop\_sd)

norm\_300 = rnorm(n= 300, mean= pop\_mean, sd= pop\_sd)

norm\_3000 = rnorm(n= 3000, mean= pop\_mean, sd= pop\_sd)

1. require(here)

png(

filename = here("lab\_04\_hist\_01.png"),

width = 1500, height = 1600,

res = 180, units = "px")

par(mfrow = c(2, 2))

hist(main= "Histogram n=17", x= norm\_17)

hist(main= "Histogram n=30", x=norm\_30)

hist(main= "Histogram n=300", x=norm\_300)

hist(main= "Histogram n=3000", x=norm\_3000)

dev.off()

1. Chart, histogram

   Description automatically generated
2. The larger the sample size, the more normal the distribution appears. In the first panel (n=17), the sample size is much smaller than the last panel (n=3000), and it does not show a smooth normal distribution.
3. When you increase the sample size, you reduce uncertainty, so the data becomes more normally distributed in this particular data set.
4. In a standard Normal distribution, the mean is 0 and the standard deviation is +/- 1.
5. pdf(file= "norm\_1.pdf", bg="white")

x = seq(0, 20, length.out = 1000)

y = dnorm(x, mean=10.4, sd=2.4)

plot(x, y, main = "Normal PDF: mean: 10.4 sd=2.4", type = "l")

dev.off()



1. random\_1 = rnorm(n=65, mean=800, sd=1)
2. 
3. dat\_random = data.frame(x = dat\_unif\_2, y = y\_random)
4. 

1. dat\_random$y\_predicted=line\_point\_slope(dat\_random$x, guess\_x, guess\_y, guess\_slope)

dat\_random$resids=y\_random - dat\_random$y\_predicted

1. 