# R TUTORIAL, #14:
# CONFIDENCE INTERVALS (CIs)

The (>) symbol indicates something that you will type in.
A bullet (•) indicates what the R program should output (and other comments).

## CI FOR A MEAN; STANDARD DEVIATION UNKNOWN

• Plot the density curve for the *t* distribution on 1 df (degree of freedom).
> Type: curve(dt(x,df=1), xlim = c(-3, 3), ylim = c(0, 0.5), xlab = "t", ylab="f(t)")

• Plot the density curve for the *t* distribution on 9 df. How does this differ?
> Type: curve(dt(x,df=9), xlim = c(-3, 3), ylim = c(0, 0.5), xlab = "t", ylab="f(t)")

> Type: scores = c(80, 76, 100, 83, 100)
> Type: t.test(scores, conf.level = 0.90)
  • We obtain a 90% CI for the population mean.
  • We will discuss much of this when we discuss hypothesis tests later.
> Type: t.test(scores, conf.level = 0.95)
  • How is this 95% CI different from our 90% CI?

## CI FOR A PROPORTION

• We use a *z* distribution.
> Type: prop.test(x=230, n=500, conf.level = 0.90)
> Type: prop.test(x=230, n=500, conf.level = 0.95)
  • How is this 95% CI different from our 90% CI?
  • These CIs use continuity corrections (Yates's continuity correction).

• Here, we will not use Yates's continuity correction.
> Type: prop.test(x=230, n=500, conf.level = 0.90, correct = F)
> Type: prop.test(x=230, n=500, conf.level = 0.95, correct = F)
  • F stands for FALSE, which can also be typed in.
  • There are very slight differences between these intervals and what we get from our formula. R uses more sophisticated techniques.