\[ s = \sqrt{\frac{\sum(X - \bar{X})^2}{n - 1}} = \sqrt{\frac{138.5}{14}} = \sqrt{9.8929} = 3.1453 \]

Now here’s the t distribution, for samples of size 15, if the null hypothesis is true:

(\text{t distribution with mean}=70, \text{indicating critical values and regions of rejection})

\[ t_{calc} = \frac{\bar{X} - \mu_{HYP}}{s_{\bar{X}}} \]

\[ s_{\bar{X}} = \frac{s}{\sqrt{n}} = \frac{3.1453}{\sqrt{15}} = \frac{3.1453}{3.873} = .81211 \]

\[ t_{calc} = \frac{70 - 69.5}{.81211} = .61568 \]

Comparing \( t_{calc} \) to \( t \) critical yields

Statistical Conclusion: Retain the null hypothesis. There’s no evidence that from this data that freshman male heights have changed.