

# Technology Project 3

## Inferential Statistics

- Group Members:
1. \_\_\_\_\_
  2. \_\_\_\_\_
  3. \_\_\_\_\_

Follow the [Minitab instructions](#) under the technology exercises link on the website for information about how to do the problems.

1. The First Amendment Center in Nashville, TN, conducted a telephone survey of 1000 adults between May 6 and June 6, 2004, and found that 30% of Americans feel "the First Amendment goes too far in the rights it guarantees."  
<http://www.msnbc.msn.com/id/5325591/>
  - a. Simulate 200 samples of size  $n=1000$  and a probability of success of  $p=0.3$ .
  - b. Find the 95% confidence interval for each of the 200 samples found in part a. What percent of them contain the claimed proportion of  $p=0.3$ ?
  - c. Find the mean of each of the 200 samples from part a. and create a graphical summary of the means. Compare the results of your 200 samples to the three parts of the sampling distribution on page 340.
2. Demonstrate the Central Limit Theorem.
  - a. Create a discrete probability distribution with at least 5 unique values for  $x$ .
  - b. Find the mean, variance, and standard deviation for your probability distribution using the formulas from chapter 16.
  - c. Generate 1000 samples of size 4, 25, and 100 from a population with your distribution. Find the mean of each sample and describe it graphically. Compare the results of your 1000 samples to the three parts of the sampling distribution on page 345.
3. Use Minitab to create graphs demonstrating the graph from a hypothesis test.
  - a. Duplicate the graph to the right that demonstrates a two tail test with  $\alpha=0.05$ .
  - b. Create a graph demonstrating a right tail test with  $\alpha=0.05$ .

