

### Chapter 18 Examples

**Ex 1:** According to the UNM web site, Native Americans represent 11% of the student body. An SRS of 500 UNM students is chosen. What is the probability that at least 10% of those sampled are Native American?

**Ex 2** Suppose the true proportion of UNM students who are Native American is unknown. An SRS of 500 students yields sample proportion  $\hat{p} = 0.12$ . Give a 95% confidence interval for  $p$ .

**Ex 3** Suppose you are planning a sample survey to estimate the proportion of voters,  $p$ , who plan to vote for candidate Garcia in the coming election. Because you judge the value of  $\hat{p}$  is not very different from 0.5, you use  $p^* = 0.5$  for planning the sample size. You want to estimate  $p$  with 95% confidence and a margin of error less than or equal to 0.03. What is the required sample size?

**Ex 4:** Recently, 11% of the products produced by an industrial process are defective. The company modifies the process in an attempt to reduce the proportion of defective items. In a trial run, the modified process produces 30 defective items out of a total of 300 produced. Do the results demonstrate that the modification was effective, i.e., that the proportion of defective items has decreased?