

**FIGURE 8.3** A Summary of the Four Steps of Hypothesis Testing

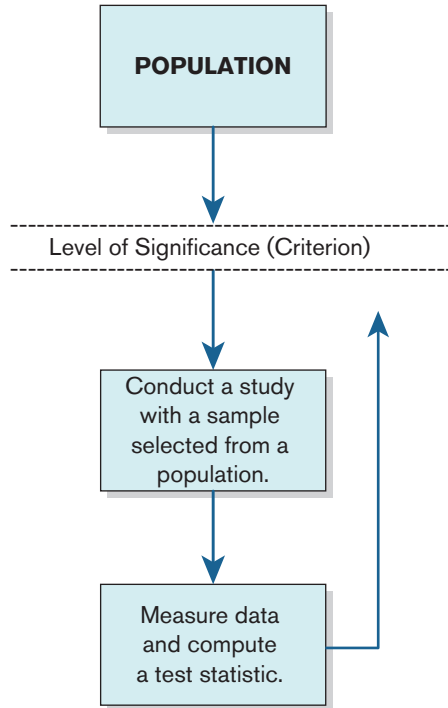
**STEP 1:** State the hypotheses.

A researcher states a null hypothesis about a value in the population ( $H_0$ ) and an alternative hypothesis that contradicts the null hypothesis.

**STEP 2:** Set the criteria for a decision. A criterion is set upon which a researcher will decide whether to retain or reject the value stated in the null hypothesis.

A sample is selected from the population, and a sample mean is measured.

**STEP 3:** Compute the test statistic. This will produce a value that can be compared to the criterion that was set before the sample was selected.



**STEP 4:** Make a decision. If the probability of obtaining a sample mean is less than or equal to 5% when the null is true, then reject the null hypothesis. If the probability of obtaining a sample mean is greater than 5% when the null is true, then retain the null hypothesis.