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Chapter 8

Hypotheses Tests

- 8.1 Hypotheses and Test Procedures
- 8.2 z-Tests for Hypotheses about a Population Mean
- 8.3 The One-Sample t-Test**
- 8.4 Tests Concerning a Population Proportion

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Summary for $H_0: \mu = \mu_0$

Test statistic value:
$$t = \frac{\bar{x} - \mu_0}{s / \sqrt{n}}$$

- $H_a: \mu > \mu_0$ reject when $t \geq t_{\alpha, n-1}$ (**upper-tailed test**)
- $H_a: \mu < \mu_0$ reject when $t \leq -t_{\alpha, n-1}$ (**lower-tailed test**)
- $H_a: \mu \neq \mu_0$ reject when $t \geq t_{\alpha/2, n-1}$ or $t \leq -t_{\alpha/2, n-1}$ (**two-tailed test**)

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Example

A random sample (normal rvs) yields the measurements 299, 300, 302, 305, 307, 311.

Test $H_0: \mu = 300$ vs $H_a: \mu \neq 300$ with $\alpha = 0.05$

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