

Hypothesis Testing in R

Test	Function in R	Example Syntax	Notes
Z-test (one-sample)	<code>BSDA::z.test()</code>	<code>z.test(x, mu=mu0, sigma.x=known_sd, alternative="two.sided")</code>	Requires BSDA package. Use when population σ is known.
One-sample T-test	<code>t.test()</code>	<code>t.test(x, mu=mu0, alternative="two.sided")</code>	Base R function. Use when σ is unknown (sample SD is used).
One-Way ANOVA	<code>aov()</code>	<code>aov(scores ~ group, data=df)</code>	Tests difference in means across more than 2 groups (one factor).
Two-Way ANOVA	<code>aov()</code>	<code>aov(scores ~ factor1*factor2, data=df)</code>	Tests main & interaction effects of two factors.
Chi-Square Goodness of Fit	<code>chisq.test()</code>	<code>chisq.test(x=observed_counts, p=expected_probs)</code>	Compares observed vs expected distribution.
Chi-Square Independence	<code>chisq.test()</code>	<code>chisq.test(table(var1, var2))</code>	Tests independence between two categorical variables.