Guidelines for Selecting the Appropriate Hypothesis Test

TYPE OF DATA
[Are observations numbers?]

NO QUALITATIVE

[Are observations cross-classified?]

NO

One-Variable $\chi^2$ Test (Ch. 19)

Two-Variable $\chi^2$ Test (Ch. 19)

YES QUANTITATIVE

NUMBER OF GROUPS
[Are multiple observations made for same subject?]

ONE

TWO

THREE

[Are quantitative observations classified for two factors?]

NO

F for ANOVA

One-Factor $F$ Test (Ch. 16)

YES

Repeated-measures $F$ Test (Ch. 17)

YES

YES

$t$ for one sample (Ch. 13)

One-Factor $F$ Test (Ch. 16)

Two-Factor $F$ Test (Ch. 18)

TWO GROUPS
[Are quantitative observations paired?]

NO INDEPENDENT SAMPLES

YES RELATED SAMPLES

$t$ for two independent samples (Ch. 14)

$t$ for two related samples (Ch. 15)

[Are paired observations evaluated for a relationship?]

NO (DIFFERENCE)

YES (RELATIONSHIP)

$t$ for a correlation coefficient (Ch. 15)

[If any assumption is seriously violated or original observations are ranks . . .]

Mann-Whitney $U$ Test (Ch. 20)

Wilcoxon $T$ Test (Ch. 20)

Kruskal-Wallis $H$ Test (Ch. 20)