Checking conditions – some details

Proportions:
Because, in proportion problems, the variability as well as the "center" of the sampling dist'n depends on the proportion, it's a bit "tricky" to think about what to plug in for the *p* in the various formulas. These tables will clarify that.

ANOVA for means:

The statement of conditions was vague about how close the variability in the different groups must be. The material below gives you the usual "rule of thumb" for it.

General Conditions for proportion problems.

One proportion	p	$\hat{p}$ normal dist'n	$np \geq 10$ AND $n(1-p) \geq 10$
Two proportions	$p_1 - p_2$	$\hat{p}_1 - \hat{p}_2$ normal dist'n	In EACH group: $np \geq 10$ AND $n(1-p) \geq 10$

Conditions for confidence intervals on proportions

One proportion Confidence Interval	p	$\hat{p}$ normal dist'n	$n\hat{p} \geq 10$ AND $n(1-\hat{p}) \geq 10$ Alternative interpretation: At least 10 successes and 10 failures
Two proportions Confidence Interval	$p_1 - p_2$	$\hat{p}_1 - \hat{p}_2$ normal dist'n	$n_1\hat{p}_1 \geq 10$ AND $n_1(1-\hat{p}_1) \geq 10$ AND $n_2\hat{p}_2 \geq 10$ AND $n_2(1-\hat{p}_2) \geq 10$ Alternative interpretation: At least 10 successes and 10 failures in each group

Conditions for hypothesis tests on proportions

One proportion Hypothesis Test	$H_0 : p = p_0$	$\hat{p}$ normal dist'n	$np_0 \geq 10$ AND $n(1-p_0) \geq 10$ Use p_0 from the null hypothesis
Two proportions Hypothesis Test	$H_0 : p_1 = p_2$	$\hat{p}_1 - \hat{p}_2$ normal dist'n	$n_1\hat{p}_1 \geq 10$ AND $n_1(1-\hat{p}_1) \geq 10$ AND $n_2\hat{p}_2 \geq 10$ AND $n_2(1-\hat{p}_2) \geq 10$ Alternative interpretation: At least 10 successes and 10 failures in each group

Variability Condition for ANOVA for Means:

For the condition "Variability is similar in all groups" a general rule is:
Tthis is met if the ratio of the largest standard deviation to the smallest standard deviation is no greater than 2.