

ANOVA summary table

This is supplementary material; the Dancey and Reidy textbook does not include this table, which shows the relationship between values in the ANOVA summary table. All of the values can be calculated from other values in the table, with the exception of the probability, which can be looked up in a table.

| Source of variance | Sums of squares | Degrees of freedom | Mean squares | F ratio | p value (sig.) |
|--------------------|-------------------|---|---|---|----------------|
| Between conditions | SS_{bet} | $df_{\text{bet}} = \text{levels} - 1$ | $\frac{SS_{\text{bet}}}{df_{\text{bet}}}$ | $\frac{MS_{\text{bet}}}{MS_{\text{err}}}$ | From table |
| Error | SS_{err} | $df_{\text{err}} = df_{\text{tot}} - df_{\text{bet}}$ | $\frac{SS_{\text{err}}}{df_{\text{err}}}$ | | |
| Total | SS_{tot} | $df_{\text{tot}} = N - 1$ | | | |

Variations: Note that this is a one-way, between participants ANOVA table. A two-way table would have three 'between conditions' or 'effect' rows, one for each of the two main effects and one for the interaction (df for the interaction can be calculated by multiplying together the dfs for the relevant main effects).

For a repeated measures design, there is an 'error' row for each effect (there is just one effect in a one-way ANOVA, three in a two-way ANOVA) and the 'total' row is not usually included. The degrees of freedom for the error row is (no. of participants – no. of groups) \times (df_{between}). Note that for a completely repeated measures design the number of groups will be one, but for a mixed design, there will be more than one group.

Apart from the extra information need to calculate degrees of freedom (given above), more complex ANOVA tables are constructed in just the same way as the one-way table given on this page.