Two-Way ANOVA

Source	Degrees of freedom	Sum of squares	Mean sum of squares	F
Factor A	$a-1$	$SSA = bn \sum_{i=1}^{a}(\bar{Y}_{i..} - \bar{Y}_{...})^2$	$MSA = \dfrac{SSA}{a-1}$	$\dfrac{MSA}{MSE}$
Factor B	$b-1$	$SSB = an \sum_{j=1}^{b}(\bar{Y}_{.j.} - \bar{Y}_{...})^2$	$MSB = \dfrac{SSB}{B-1}$	$\dfrac{MSB}{MSE}$
Interaction	$(a-1)(b-1)$	$SSAB = n \sum_{i=1}^{a}\sum_{j=1}^{b}(\bar{Y}_{ij.} - \bar{Y}_{i..} - \bar{Y}_{.j.} + \bar{Y}_{...})^2$	$MSAB = \dfrac{SSAB}{(a-1)(b-1)}$	$\dfrac{MSAB}{MSE}$
Error	$ab(n-1)$	$SSE = \sum_{i=1}^{m}\sum_{j=1}^{n}(Y_{ij} - \bar{Y}_{i.} - \bar{Y}_{.j} + \bar{Y}_{..})^2$	$MSE = \dfrac{SSE}{ab(n-1)}$	
Total	$abn-1$	$SSTO = \sum_{i=1}^{a}\sum_{j=1}^{b}\sum_{k=1}^{n}(Y_{ijk} - \bar{Y}_{...})^2$		

Longitudinal

Source	Degrees of freedom	Sum of squares	Mean sum of squares	Expected sum of squares
Subject	$m-1$	$SSS = n \sum_{i=1}^{m}(\bar{Y}_{i.} - \bar{Y}_{..})^2$	$MSS = \dfrac{SSS}{m-1}$	$\sigma^2 + n\sigma_{\pi}^2$
Time	$n-1$	$SST = m \sum_{j=1}^{n}(\bar{Y}_{.j} - \bar{Y}_{..})^2$	$MST = \dfrac{SST}{n-1}$	$\sigma^2 + m \sum_{j=1}^{n}(\mu_j - \mu_.)^2$
Error	$(m-1)(n-1)$	$SSE = \sum_{i=1}^{m}\sum_{j=1}^{n}(Y_{ij} - \bar{Y}_{i.} - \bar{Y}_{.j} + \bar{Y}_{..})^2$	$MSE = \dfrac{SSE}{(m-1)(n-1)}$	σ^2
Total	$mn-1$	$SSTO = \sum_{i=1}^{m}\sum_{j=1}^{n}(Y_{ij} - \bar{Y}_{..})^2$		