

General-purpose tools

Purpose	Function	Error distribution	Package
Regression, ANOVA, ANCOVA	lm()	Normal	stats
A single nonlinear curve	nls()	Normal / various	stats / nlme
Mixed-effect models	lmer(), lme()	Normal	lme4 / nlme
Regression, ANOVA, ANCOVA	glm()	Various	stats
Nonlinear mixed-effects models	nlmer() or nlme()	Normal	lme4 / nlme
Generalised mixed-effects models	glmer() or gnls()	Normal	lme4 / nlme
Nonlinear generalised models	not used	Any	NA
Structural equation models	lavaan()	Any	lavaan
Hierarchical Bayesian models	stan()	ANY	rstan

Specialties

Purpose	Function	Error distribution	Package
Homogeneity of variances	bartlett.test()		stats
Test for normality	shapiro.test()	to be determined!	stats
Frequency of count data	chisq.test()		stats
Test a correlation	cor.test()		stats
Non-parametric tests	kruskal.test()	and similar	stats
Multivariate analysis of variance	manova()	normal	stats
t-Test	t.test()	normal	stats
Quantile regression	rq()	normal	quantreg
Survival analysis	coxph(), survreg()	exponential or Weibull	survival
(Standardized) Major Axis regression	sma()	Various	smatr
Randomizations	roll your own!	ANY	ALL