

Subject Index

a

accelerated life-tests 3
 constant-stress 4, 13, 47, 65, 80, 95,
 141, 173
 step-stress 4, 119
 autopsy data 142

b

Bayesian 47, 155
 bias 30, 51, 70, 100, 160, 181

c

censoring 2, 3, 14
 competing risks 10, 143
 composite log-likelihood 180
 confidence intervals 66
 arsech-transformation 28, 99
 asymptotic 26, 28, 99
 log-transformation 29
 logit-transformation 29, 99
 contamination 83
 copula 174
 Archimedean copula 174
 Frank copula 177
 Gumbel-Hougaard copula 176
 independence copula 175

coverage probability 30, 51, 66,
 100
 credible intervals 48
 cumulative exposure model 4, 119

d

data
 ED01 7, 167
 electro-explosive devices 4, 41
 glass capacitors 5, 41, 63, 91
 grease-based magnetorheological
 fluids 122
 grease-basedmagnetorheological
 fluids 6
 mice tumor 7, 102
 serial sacrifice 7, 76, 184
 solder joints 5
 Debye function 178
 degenerating function 84
 delta method 15, 27
 dependence
 negative 178
 positive 176, 178
 destructive testing 2
 digamma function 20
 distance-based test statistic 68, 99

e

expectation-maximization 10, 14, 145
 exponential integral 25

f

Fisher information matrix 26, 82, 98,
 106, 120
 Fréchet–Hoeffding copula bounds 177,
 179

g

gamma function 18, 178
 generalized hypergeometric function
 21, 25, 168
 generator 175
 goodness-of-fit test statistic 70
 gradient vector 146

h

Hessian matrix 146

i

identifiability 124
 incomplete gamma function 168
 incomplete gamma ratio
 lower 18
 upper 18
 influence function 83
 information criterion
 Akaike information criterion 66
 Bayesian information criterion 67

k

Kendall's tau 175
 Kullback-Leibler divergence 80

l

lifetime distributions
 exponential 10, 16, 51, 86, 121, 143
 extreme value 22, 149

gamma 10, 18, 51, 65, 86, 181
 Weibull 10, 21, 51, 65, 86, 97, 108,
 122, 149, 181

link function 16

m

Maple 21, 25
 marginal distributions 175
 masked data 144
 Matlab 21, 25
 maximum likelihood estimates 14, 26,
 143
 Metropolis–Hastings algorithm 48, 155
 minimum density power divergence
 estimator 80
 missing information matrix 193
 missing information principle 26, 193
 model mis-specification 10, 65
 Monte Carlo simulation 30, 51, 70, 86,
 100, 109, 133, 160, 181

n

non-destructive testing 3

o

observed information matrix 26, 193
 one-shot device 1, 2
 multiple components 10, 141, 173
 optimal designs
 CSALT 10, 105
 SSALT 11, 119
 outliers 85

p

priors
 beta 50
 Dirichlet 157
 Laplace 49, 156
 normal 49, 157
 proportional hazards 10, 95

q

quasi maximum likelihood estimates 65

r

R codes 41, 63, 77, 91, 103, 108, 128, 165, 184
Riemann zeta function 178
root mean square errors 30, 51, 70, 86, 100, 160, 181

s

standard deviation 127
standard error 15, 126

t

trigamma function 20

w

Wald-type tests 83
weighted minimum density
power divergence 10, 81

