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Mathematics Library News 7

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Most-cited Statistics Articles, 1981-2010

Most highly-cited articles in Web of Science in journals classified as "Statistics and Probability" in Journal Citation Reports (top 100 journals by 5-year impact factor)	Current Index to Statistics keywords	Citations 1981-2010, counted Nov. 12, 2010
1. Liang, K.Y. and Zeger, S.L., Longitudinal data analysis using generalized linear models, <i>Biometrika</i> 73 (1986)	Repeated measures	6117
2. Engle, R.F. and Granger, C.W.J., Cointegration and error correction: representation, estimation, and testing, <i>Econometrica</i> 55 (1987)		4409
3. Engle, R.F., Autoregressive conditional heteroscedasticity with estimates of the variance of United Kingdom inflation, <i>Econometrica</i> 50 (1982)		3126
4. Zeger, S.L. and Liang, K.Y., Longitudinal data analysis for discrete and continuous outcomes, <i>Biometrics</i> 52 (1986)	Quasi likelihood; Repeated measures; Generalized linear model	3082
5. Laird, N.M. and Ware, J.H., Random effects models for longitudinal data, <i>Biometrics</i> 38 (1982)	Variance components; Repeated measurements; Empirical Bayes; EM algorithm	3007
6. Guo, S.W. and Thompson, E.A., Performing the exact test of Hardy-Weinberg proportion for multiple alleles, <i>Biometrics</i> 48 (1992)	Goodness-of-fit; Genetics	2517
7. Newey, W.K. and West, K.D., Simple positive semi-definite heteroskedasticity and autocorrelation consistent covariance matrix, <i>Econometrica</i> 55 (1987)		2426

Most highly-cited articles in Web of Science in journals classified as "Statistics and Probability" in Journal Citation Reports (top 100 journals by 5-year impact factor)	Current Index to Statistics keywords	Citations 1981-2010, counted Nov. 12, 2010
8. Rosenbaum, P.R. and Rubin, D.B., Central role of the propensity score in observational studies for causal effects, <i>Biometrika</i> 70 (1983)	Discriminant matching; Matched sampling	2409
9. Gelfand, A.E. and Smith, A.F.M., Sampling-based approaches to calculating marginal densities, <i>J. of the Amer. Stat. Assoc.</i> 85 (1990)	Stochastic substitution; Gibbs sampler; sampling-importance-resampling algorithm	2183
10. Hansen, L.P., Large sample properties of generalized method of moments indicators, <i>Econometrica</i> 50 (1982)		2174
11. Donoho, D.L. and Johnstone, I.M., Ideal spatial adaptation by wavelet shrinkage, <i>Biometrika</i> 81 (1994)	Minimax; Spline	2160
12. Irizarry, R.A., Hobbs, B. Collin, F., Beazer-Barclay, Y.D., Antonellis, K.J., Scherf, U., and Speed, T.P., Exploration, normalization, and summaries of high density oligonucleotide array probe level data, <i>Biostatistics</i> 4 (2003)	Armitage-Doll model; Mechanistic cancer model; Multistage model; Mutations and cancer; Radiation and cancer; Smoking and cancer	2156
13. Kass, R.E. and Raftery, A.E., Bayes factors, <i>Journal of the American Statistical Association</i> 90 (1995)	Hypothesis testing; Importance sampling; Markov chain Monte Carlo; Model selection	2139
14. Dickey, D.A. and Fuller, W.A., Likelihood ratio statistics for autoregressive time series with a unit root, <i>Econometrica</i> 49 (1981)		1943
15. Conover, W.J. and Iman, R.L., Rank transformations as a bridge between parametric and nonparametric statistics, <i>American Statistician</i> 35 (1981)	Design of experiments; Discriminant analysis; Multiple comparisons	1857
16. Phillips, P.C.B. and Perron, P., Testing for a unit root in time series regression, <i>Biometrika</i> 75 (1988)	Brownian motion	1788
17. DeLong, E.R., DeLong, D.M., and Clarke-Pearson, D.I., More correlated receiver operating characteristic curves: a nonparametric approach, <i>Biometrics</i> 44 (1988)	Mann-Whitney test; U-statistic	1778
18. Johansen, S. and Juselius, K., Maximum likelihood estimation and inference on cointegration with applications to the demand for money, <i>Oxford Bulletin of Economics and Statistics</i> 52 (1990)		1750
19. Harrell, F.E., Lee, K.L., and Mark, D.B., Multivariable prognostic models: issues in developing models, evaluating assumptions and adequacy, and measuring and reducing errors, <i>Statistics in Medicine</i> 15 (1996)	Regression; Survival analysis; prediction	1512
20. Higgins, J.P.T., Thompson, S.G., Quantifying heterogeneity in a meta-analysis, <i>Statistics in Medicine</i> 21 (2002)	systematic review methodology	1498

Most-cited Mathematics Articles, 1981-2010

Most highly-cited articles in Web of Science in journals classified as "Mathematics" in Journal Citation Reports (top 150 journals by 5-year impact factor)	AMS field and MSC subject	Citations 1981-2010, counted Nov. 10, 2010
1. Daubechies, I., Orthonormal bases of compactly supported wavelets, Comm. on Pure and Applied Math. 41 (1988)	Analysis 42	3007
2. Karmarkar, N., New Polynomial-time algorithm for linear programming, Combinatorica 4 (1984)	Applied 90	1286
3. Mumford, D. and Shah, J., Optimal approximations by piecewise smooth function and associated variational problems, Comm. on Pure and Applied Math. 42 (1989)	Linear, non-linear, optim./contrl 49	1151
4. Crandall, M.G., Ishii, H., and Lions, P.L., Users' guide to viscosity solutions of 2nd order partial differential equations, Bull. Amer. Math. Soc. 27 (1992)	Diff., integral, diff. eqs. 35	1086
5. Hutchinson, J.E., Fractals and self-similarity, Indiana University Math. J. 30 (1992)	Linear, non-linear, optim./contrl. 49	1037
6. Mallat, S.G., Multiresolution approximations and wavelet orthonormal bases of $L_s(\mathbb{R})$, Trans. Amer. Math. Soc. 315 (1989)	Analysis 42	982
7. Cohen, A., Daubechies, I., and Feauvea, J.C., Biorthogonal bases of compactly supported wavelets, Comm. on Pure and Applied Math 45 (1992)	Analysis 42	961
8. Crandall, M.G., and Lions, P.L., Viscosity solutions of Hamilton-Jacobi equations, Trans. Amer. Math. Soc. 277 (1983)	Diff., integral, diff. eqs. 35	887
9. Brezis, H. and Nirenberg, L., Positive solutions of nonlinear elliptic equations involving critical Sobolev exponents, Comm. on Pure and Applied Math. 36 (1983)	Diff., integral, diff. eqs. 35	853
10. Lenstra, A.K., Lenstra H.W., and Lovasz, L., Factoring polynomials with rational coefficients, Math. Annalen 261 (1982)	Algebra/number theory 12	723
11. Beylkin, G., Coifman, R., and Rokhlin, V., Fast wavelet transforms and numerical algorithms I, Comm. on Pure and Applied Math. 44 (1991)	Numerical analysis 65	716
12. Jones, V.F.R., Polynomial invariant for knots via von Neumann algebras, Bull. Amer. Math. Soc. 12 (1985)	Geometry/topology 57	642
13. Gromov, M. Pseudo-holomorphic curves in symplectic manifolds, Invent. Math. 82 (1985)	Geometry/topology 53	632
14. Simon, B., Schrödinger semigroups, Bull. Amer. Math. Soc. 7 (1982)	Applied 81	602
15. Alchourron, C.E., Gardenfors, P., and Makinson, D., On the logic of theory change: partial meet contraction and revision functions, Journal of Symbolic Logic 50 (1985)	Discrete 3	585
16. Jones, V.F.R., Index for subfactors, Invent. Math. 72 (1983)	Analysis 46	563
17. Thurston, W.P., Three dimensional manifolds, Kleinian groups and hyperbolic geometry, Bull. Amer. Math. Soc. 6 (1982)	Geometry/topology 57	550
18. Jimbo, M. and Miwa, T., Solitons and infinite dimensional Lie algebras, Pub of Res. Inst. for Math. Sci. 19 (1983)	Geometry/topology 58	543
19. Puri, M.L. and Ralescu, D.A., Fuzzy random variables, J. of Math Anal. and Applications 114 (1986)	Discrete 3	532
20. Witten, E., Supersymmetry and Morse theory, J. of Diff. Geom. 15 (1982)	Geometry/topology 58	523