

## A statistical package in BASIC for small-system applications

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This statistical package consists of 21 BASIC programs developed for use in teaching and research. They were written to conform to the procedural steps found in popular statistics handbooks (Bruning & Kintz, 1977; Linton & Gallo, 1975). The programs are self-instructional, requiring keyboard data input and providing output at the user's terminal. They are well documented for easy alteration with regard to number of variables or number of scores.

The package was developed to serve the small-system user with standard BASIC, running either timesharing or real-time applications. The programs facilitate storage on a public device, and are written for easy adaptation to a variety of manufacturers' equipment. The package can easily supplement other statistical libraries specific to a given manufacturer (cf. Biderman, 1978).

Under timesharing, each program is brought into the user's work area in the standard way. The individual programs in the package are listed below:

BDESC.BAS	Distribution statistics including the mean, standard deviation, variance, standard error of the mean, and measure of kurtosis.
BTESTP.BAS	t test for a difference between a sample mean and a population mean.
BTESTI.BAS	t test for a difference between two independent samples.
BTESTR.BAS	t test for a difference between related samples, including calculation of a Pearson product-moment correlation coefficient.
BANOVS.BAS	Simple analysis of variance for the completely randomized design (fixed-effects model).
B2FACT.BAS	Two-factor analysis of variance for the completely randomized design (fixed-effects model).
BHO1.BAS	Tukey test for a critical difference in making all comparisons between means.

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BHO2.BAS	Scheffé test for a critical difference in making comparisons between means.
BCO1.BAS	Pearson product-moment correlation coefficient. The significance test for r is done with a critical ratio z test if the number of pairs is 30 or larger; a t test is done if the number of pairs is smaller than 30.
BSPEAR.BAS	Spearman rank-order correlation ( $\rho$ ). Both the critical-ratio z test and t test are used, as in the case of the Pearson.
BKEND.BAS	Kendall rank-order correlation ( $\tau$ ). The test of significance is based on the z statistic.
BPOINT.BAS	Point-biserial correlation for a continuous variable and a dichotomous variable. The test of significance is based on the t test.
BRELO.BAS	Reliability of measurement: Hoyt's procedure for the Kuder-Richardson coefficient.
BMANNU.BAS	Mann-Whitney U-test for differences between independent samples. The significance test is based on a critical-ratio z value.
BPO3.BAS	Wilcoxon test for differences between related samples.
BFRED.BAS	Friedman test for differences among conditions in a within-subjects design.
BKRUSK.BAS	Kruskal-Wallis test for differences among groups in a between-subjects design.
BANOVC.BAS	Simple analysis of covariance with one treatment variable.
BCHISQ.BS	Simple chi-square and the phi coefficient. Yates' correction for continuity is available. Complex chi-square and the contingency coefficient (C) are available.
BO1.BAS	Tests for the significance of differences between two proportions.
BRAND.BAS	Randomization program to generate lists of random integers with and without duplication.

**Language and Computer.** The package was written in DEC PDP-11/40 (RSTS/E) BASIC and runs on the DEC PDP-11/40. Modifications for use on any computer having standard BASIC would be minimal.

**Availability.** The source code for the package is available on magnetic tape (800 bpi, any word size, ASCII) or paper tape. Costs may be obtained from Richard Deni, Psychology Department, Rider College, Lawrenceville, New Jersey 08648.

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