

NCSS
329 North 1000 East
Kaysville, Utah 84037



Announcing...

PASS 2008

We are pleased to announce a new edition of our PASS power analysis and sample size software.

What's New in PASS 2008?

This edition of PASS has been **split from NCSS** and now functions as an independent application. PASS 2008 adds **over 40 new** power and sample size **procedures and features** to PASS, including procedures for **mixed models, kappa testing, Normality testing, Cochran-Armitage** proportion trend testing, new **survival analysis** procedures, tools to **create randomization lists**, several **confidence interval** procedures, several **design of experiments** procedures, **microarray gene expression** comparison tools, an **enhanced user interface**, an **improved help system**, and the ability to create **macros** (which add programmability and streamline repeated tasks). All templates of previous versions of PASS are **fully compatible** with PASS 2008.

New Procedures and Features

Mixed Models

Logrank (Survival) Tests (4 input options)

Logrank Non-Inferiority Tests

Kappa Tests

Cochran-Armitage Proportion Trend Tests

Create Randomization Lists

-Efron's Biased Coin

-Smith

-Wei's Urn

-Random Sorting

Confidence Intervals

-One or Two Means (6 Procedures)

-One Standard Deviation (3 Procedures)

-One Variance (3 Procedures)

-Ratio of Two Variances (2 Procedures)

-One Proportion

-Two Proportions (4 input options)

-Slope in Simple Linear Regression

-One Correlation

Longitudinal Time-Averaged Differencing

-Two Means

-Two Proportions (2 input options)

Normality Tests

-Shapiro-Wilk

-Anderson-Darling

-Kolmogorov-Smirnov

-5 Others

Design of Experiments

-Two-Level Designs

-Fractional Factorial Designs

-Balanced incomplete Block Designs

-Latin Square Designs

-Response Surface Designs

-Screening Designs

-Taguchi Designs

-D-Optimal Designs

-Design Generator

Microarray Gene Expression

-One-Sample/Paired T-Tests

-Two-Sample T-Tests

Simplified Interface

Improved Help System

Quick Launch

Macros

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Mixed Models

The new Mixed Models procedure uses simulation to power analyze a variety of experimental designs for comparing means in which the response is continuous. The procedure focuses on models that are commonly used to analyze longitudinal (repeated measures) data, but can also be used to determine power for split-plot designs, cross-over designs, factorial designs, etc.

Logrank Tests

Five new logrank test procedures greatly improve the accuracy and ability to compute the sample size and power of the logrank test for equality or non-inferiority of survival distributions under very general assumptions. Accrual time, follow-up time, loss during follow-up, noncompliance, and hazard rates may vary with time. The parameterization can be in terms of hazard rates, median survival time, proportion surviving, or mortality.

Create Randomization Lists

This procedure creates randomization lists for assigning subjects to one of up to eight treatments. Six randomization algorithms are available. Four of the algorithms (Efron's biased coin randomization, Smith's randomization, Wei's urn randomization, and random sorting using maximum allowable % deviation) are designed to generate balanced random samples throughout the course of an experiment. The other two (complete randomization and random sorting) are less complex but have higher probabilities of imbalance.

Kappa Test for Agreement between Two Raters

This procedure computes power and sample size for the test of agreement between two raters using the kappa statistic. Calculations are based on ratings for k categories from two raters or judges. You are able to vary category frequencies on a single run to analyze a wide range of scenarios at once.

Confidence Intervals

Eighteen new confidence interval procedures have been added to PASS 2008. These procedures cover confidence intervals for one mean, two means, one standard deviation, one variance, two variances, one proportion, two proportions, regression slope, and one correlation. In some procedures tolerance probabilities or relative error may additionally be specified.

Microarray T-Tests (One- or Two-sample, Paired)

Two new microarray procedures estimate the power and number of arrays required for one-sample, two-sample, and paired sample t-tests of microarray gene expression data. False discovery rate and experiment-wise error rate control methods are available in this procedure.

Cochran-Armitage Proportion Trend Tests

This procedure computes power and sample size for the Cochran-Armitage test for a linear trend in proportions. Asymptotic and exact power calculations for the uncorrected and continuity-corrected tests are available.

Normality Tests

This procedure uses simulation to determine the power of eight normality tests (including Shapiro-Wilk, Anderson-Darling, and Kolmogorov-Smirnov). A wide variety of alternative distributions can be specified in this procedure.

Longitudinal Time-Averaged Differencing - Two Means/Proportions

These procedures calculate the power for testing the time-averaged difference between two means or two proportions in a longitudinal design. The data from such a design are often analyzed using mixed models software. Measurements may be taken at pre-determined times or at random times.

Design of Experiments

Nine new experimental design procedures have been added to PASS 2008. The procedures generate designs based on the number of desired factors and desired number of levels of each factor. The experimental design procedures are Two-Level, Fractional Factorial, Balanced incomplete Block, Latin Square, Response Surface, Screening, Taguchi, D-Optimal, and the Design Generator.

Simplified Interface

The interface has been redesigned to make the user input easier to complete. Boxes containing descriptive titles have been added to group similar options. This makes navigation of the procedure windows easier and allows for faster identification of input categories.

Improved Help System

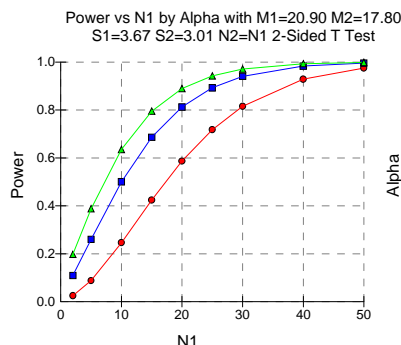
The new PASS 2008 Help System has been designed for easier searching and printing. Chapter and keyword indices have been added, and the entire Help System is now searchable. Individual PDF chapters can be printed as well as whole sections of the manuals.

Quick Launch

The new Quick Launch window contains a button corresponding to each procedure in the system. The Quick Launch window makes it easy to find and launch any procedure.

Macros (Programmability)

The new Macros procedure utilizes a batch language that lets you create and run macros (scripts/programs) for repeated tasks.



Procedures in PASS 2008

Below is a list of many of the statistical procedures for which power and sample size calculations may be made using PASS 2008. * New in PASS 2008

Analysis of Variance

Cross-over designs
 Factorial ANOVA
 Fixed effects ANOVA
 MANOVA
 Multiple comparisons
 One-way ANOVA
 Planned comparisons
 Randomized block ANOVA
 Repeated measures ANOVA
 Simulation

Regression / Correlation

Coefficient alpha
 Confidence Intervals*
 Correlations
 Cox regression
 Intraclass correlation
 Linear regression
 Logistic regression
 Multiple regression
 Poisson regression

Proportions

Chi-square test
 Cluster-randomization
 Cochran-Armitage trend tests*
 Confidence intervals*
 Equivalence tests
 Fisher's exact test
 Group sequential
 Likelihood score tests
 Mantel-Haenszel test
 Matched case-control
 McNemar test
 Non-inferiority tests
 Odds ratios, ratios
 Proportions - 1, 2, & paired
 Repeated Measures - 2 Sample
 Two-stage designs (Simon's)
 Three-stage designs

Equivalence - Non-Inferiority

Means
 Proportions
 Correlated proportions
 Survival Analysis*

Survival Analysis

Cox regression
 Cluster-randomization*
 Group sequential - survival
 Post-marketing surveillance
 ROC curves - 1 or 2

Design of Experiments

Balanced incomplete Block*
 Create Randomization Lists*
 D-Optimal*
 Design Generator*
 Fractional Factorial*
 Latin Square*
 Response Surface*
 Screening*
 Taguchi*
 Two-Level*

Mixed Models

Random Effects Models*
 Time Averaged Differencing (TAD)*
 Proportions (TAD) - 2*
 Means (TAD) - 2*

T Tests

Cluster randomization
 Confidence intervals*
 Equivalence
 Group sequential
 Hotelling's T-squared
 Mann-Whitney test
 Non-inferiority
 One-sample t-tests
 Paired t-tests
 Simulation
 Two-sample t-tests
 Wilcoxon test

Group Sequential Tests

Alpha spending functions
 Lan-DeMets approach
 Means
 Proportions
 Survival curves

Microarray

One-sample or Paired t-tests*
 Two-sample t-tests*

Miscellaneous Tests

Exponential means - 1 or 2
 Kappa test*
 Normality tests*
 ROC curves - 1 or 2
 Variances - 1 or 2

Confidence Intervals

Correlation*
 Means - 1 or 2 or Paired*
 Proportions - 1 or 2*
 Standard Deviation*
 Variances - 1 or 2*
 Slope - Linear Regression*

Miscellaneous Features

Automatic graphics
 Finite population corrections
 Inline references
 Macros*
 Quick Launch*
 Solves for any parameter
 Text summary
 Unequal N's