Connexions module: m16302

## COLLABORATIVE STATISTICS: SYMBOLS AND THEIR MEANINGS\*

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## Abstract

This module defines symbols used throughout the Collaborative Statistics textbook.

## Symbols and their Meanings

Chapter (1st used)	Symbol	Spoken	Meaning
Sampling and Data		The square root of	same
Sampling and Data	π	Pi	3.14159 (a specific number)
Descriptive Statistics	Q1	Quartile one	the first quartile
Descriptive Statistics	Q2	Quartile two	the second quartile
Descriptive Statistics	Q3	Quartile three	the third quartile
Descriptive Statistics	IQR	inter-quartile range	Q3-Q1=IQR
Descriptive Statistics	$\overline{x}$	x-bar	sample mean
Descriptive Statistics	$\mu$	mu	population mean
Descriptive Statistics	$s s_x sx$	S	sample standard deviation
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<sup>\*</sup>Version 1.9: Mar 30, 2009 4:24 pm -0500

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Descriptive Statistics	$s^2 s_x^2$	s-squared	sample variance
Descriptive Statistics	$\sigma \sigma_x \sigma x$	sigma	population standard deviation
Descriptive Statistics	$\sigma^2 \sigma_x^2$	sigma-squared	population variance
Descriptive Statistics	$\Sigma$	capital sigma	sum
Probability Topics	{}	brackets	set notation
Probability Topics	S	S	sample space
Probability Topics	A	Event A	event A
Probability Topics	P(A)	probability of A	probability of A occurring
Probability Topics	$P(A \mid B)$	probability of A given B	prob. of A occurring given B has occurred
Probability Topics	P(A or B)	prob. of A or B	prob. of A or B or both occurring
Probability Topics	P(A and B)	prob. of A and B	prob. of both A and B occurring (same time)
Probability Topics	A'	A-prime, complement of A	complement of A, not A
Probability Topics	P (A')	prob. of complement of A	same
Probability Topics	$G_1$	green on first pick	same
Probability Topics	$P(G_1)$	prob. of green on first pick	same
Discrete Random Variables	PDF	prob. distribution function	same
Discrete Random Variables	X	X	the random variable X
Discrete Random Variables	X ~	the distribution of X	same
Discrete Random Variables	В	binomial distribution	same
Discrete Random Variables	G	geometric distribution	same
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Discrete Random Variables	Н	hypergeometric dist.	same
Discrete Random Variables	P	Poisson dist.	same
Discrete Random Variables	λ	Lambda	average of Poisson dis- tribution
Discrete Random Variables	2	greater than or equal to	same
Discrete Random Variables	<u>≤</u>	less than or equal to	same
Discrete Random Variables	=	equal to	same
Discrete Random Variables	≠	not equal to	same
Continuous Random Variables	$f\left( x\right)$	f of x	function of x
Continuous Random Variables	pdf	prob. density function	same
Continuous Random Variables	U	uniform distribution	same
Continuous Random Variables	Exp	exponential distribution	same
Continuous Random Variables	k	k	critical value
Continuous Random Variables	$f\left( x\right) =% {\displaystyle\int\limits_{0}^{\infty }} f\left( x\right) dx$	f of x equals	same
Continuous Random Variables	m	m	decay rate (for exp. dist.)
The Normal Distribution	N	normal distribution	same
The Normal Distribution	z	z-score	same
The Normal Distribution	Z	standard normal dist.	same
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The Central Limit Theorem	CLT	Central Limit Theorem	same
The Central Limit Theorem	$\overline{X}$	X-bar	the random variable X-bar
The Central Limit Theorem	$\mu_x$	mean of X	the average of X
The Central Limit Theorem	$\mu_{\overline{x}}$	mean of X-bar	the average of X-bar
The Central Limit Theorem	$\sigma_x$	standard deviation of X	same
The Central Limit Theorem	$\sigma_{\overline{x}}$	standard deviation of X- bar	same
The Central Limit Theorem	$\Sigma X$	sum of X	same
The Central Limit Theorem	$\Sigma x$	sum of x	same
Confidence Intervals	CL	confidence level	same
Confidence Intervals	CI	confidence interval	same
Confidence Intervals	EBM	error bound for a mean	same
Confidence Intervals	EBP	error bound for a proportion	same
Confidence Intervals		student-t distribution	same
Confidence Intervals	df	degrees of freedom	same
Confidence Intervals	$t_{rac{lpha}{2}}$	student-t with a/2 area in right tail	same
Confidence Intervals	p' $\hat{p}$	p-prime; p-hat	sample proportion of success
Confidence Intervals	$\mathbf{q}, \hat{q}$	q-prime; q-hat	sample proportion of failure
Hypothesis Testing	$H_0$	H-naught, H-sub 0	null hypothesis
Hypothesis Testing	$H_a$	H-a, H-sub a	alternate hypothesis
Hypothesis Testing	$H_1$	H-1, H-sub 1	alternate hypothesis
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Hypothesis Testing	α	alpha	probability of Type I error
Hypothesis Testing	β	beta	probability of Type II error
Hypothesis Testing	$\overline{X1} - \overline{X2}$	X1-bar minus X2-bar	difference in sample means
	$\mu_1 - \mu_2$	mu-1 minus mu-2	difference in population means
	$P'_1 - P'_2$	P1-prime minus P2- prime	difference in sample proportions
	$p_1 - p_2$	p1 minus p2	difference in population proportions
Chi-Square Distribution	$X^2$	Ky-square	Chi-square
	0	Observed	Observed frequency
	E	Expected	Expected frequency
Linear Regression and Correlation	y = a + bx	y equals a plus b-x	equation of a line
	$\hat{y}$	y-hat	estimated value of y
	r	correlation coefficient	same
	$\epsilon$	error	same
	SSE	Sum of Squared Errors	same
	1.9s	1.9 times s	cut-off value for outliers
F-Distribution and ANOVA	F	F-ratio	F ratio

Table 1