

two samples z test in Python [closed]

Asked 5 years, 3 months ago Active 5 years, 2 months ago Viewed 24k times

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Closed.

This question is [off-topic](#). It is not currently accepting answers.

💡

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[Update the question](#) so it's [on-topic](#) for Cross Validated.

Closed 5 years ago.


Does Scipy have a z test to compare the mean of two samples? I searched [this page](#) but couldn't find one.

hypothesis-testing

python

z-test

asked Nov 14 '14 at 23:14



ADJ

345

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I haven't used Python for Stats in a little while but, as I recall, it's best to use **Statsmodels** instead of **Scipy.Stats**. – [Steve S](#) Nov 15 '14 at 11:13

4 This question appears to be off-topic because it is about available functions in Python. – [gung - Reinstate Monica](#) ♦ Nov 15 '14 at 19:20

2 Answers

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Statsmodels has a `ztest` function that allows you to compare two means, assuming they are independent and have the same standard deviation. See the documentation [here](#)

If you need to compare means from distributions with different standard deviation, you should use `CompareMeans.ztest_ind` . See documentation [here](#).

There might be other functions I'm missing so search through the documentation!

answered Nov 15 '14 at 19:14



cd98

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No, but this wouldn't be that hard to write a function for:

```
def twoSampZ(X1, X2, mudiff, sd1, sd2, n1, n2):
    from numpy import sqrt, abs, round
    from scipy.stats import norm
    pooledSE = sqrt(sd1**2/n1 + sd2**2/n2)
    z = ((X1 - X2) - mudiff)/pooledSE
    pval = 2*(1 - norm.cdf(abs(z)))
    return round(z, 3), round(pval, 4)
```

where $X1 = \bar{X}1$, $X2 = \bar{X}2$, $mudiff = \text{null} = \mu_1 - \mu_2$, $sd1 = \sigma_1$, $sd2 = \sigma_2$, $n1 = n_1$ and $n2 = n_2$. So, going off of [this](#) example:

```
z, p = twoSampZ(28, 33, 0, 14.1, 9.5, 75, 50)
print z, p
```

answered Nov 15 '14 at 13:56



Nate

728

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Just a little tip: `1 - norm.cdf` can be replaced in numpy using `norm.sf` , which gives better precision. – [AkiRoss](#) Oct 15 '15 at 9:07

https://stats.stackexchange.com/questions/124096/two-samples-z-test-in-python

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