May 22, 2017

This time: sample size determination

Next time: 2-sample problems

read: OO LN → pp. 186 − L − 213

p. L − 174 → ~ L − 194 ← what we went over in class

makeup office hour OO: wed 1:15 − 2:15pm Jack's Lounge

* we will need at least 1 makeup class at end of quarter: early in finals week (webcast)

HW #3 is due on Friday @ 11:59 pm on canvas

Sample size determination

R−58

L − 175

$$\boxed{n \doteq \frac{\left[t_{n-1}^{(1-\alpha)(2)}\right]^2 s^2}{(\mu_0 - \mu_A)^2}} *$$

always round up w/ sample size calculations

L−178

Type I error (α) − false rejection of null (worse than type II) → not always true

Type II error (β) − false acceptance of null

want both to be small

β → want $1-\beta$ to be large ~~so β is small~~

α = significance level of the test

β = power of the test

obs. you need @ least:

−(1) for 1-tailed test,

(2) for 2-tailed test

$$n = \frac{\left[t_{n-1}^{(1-\alpha)(?)} + t_{n-1}^{(1-\beta)(1)}\right]^2 s^2}{(\mu_0 - \mu_A)^2}$$

→

L-181

HW #3 ex.

# tails	α	Power $(1-\beta)$	n
2	.05	.8	104
1	.05	.8	82
2	.01	.8	155
⋮	⋮	⋮	⋮

(ss. calc)
so CIs are like doing sig test at 50% power

How do you compare 2 samples

1.) paired comparisons
2.) analysis of 2 independent samples

2 cases to consider

$$\frac{\bar{y}_T - \bar{y}_C}{\bar{y}_C}$$

· you can compare A + B (before + after) by finding the difference between the two (B−A) → stat sig

pract sig

$$\frac{\bar{y}_A - \bar{y}_B}{\bar{y}_B}$$

* Look at formula sheet *
↳ $\boxed{\text{R-23}}$