

Assignment 5: Due to 4 pm, Oct 24, 2017

* Please name your homework file as 'Assignment5_Your name.pdf' in pdf format and send it at biostat_sjtu@163.com, thanks for your cooperation.

1. A group of investigators are studying a treatment that can reduce LDL Cholesterol level. the standard deviation of the reduction in LDL for this population from this treatment is around 20. Find the **sample size** so that one can have a 90% power to detect a 10 units average reduction in LDL (i.e., effect size of 10 units) at 5% level of significance for one-sided test.
2. The following output is from a two-sample ttest that compares mean spine bone density (SPINE) between amenorrheic women runners (n=17) and eumenorrheic women runners (n=42).

Variable	Group	N	Mean	Std Dev
SPINE	eumenorrheic	42	1.106	0.0924
SPINE	amenorrheic	17	0.9956	0.0982

- a. Calculate the confidence intervals and standard errors of mean SPINE of the two groups.
- b. How much power would I have to see a 1-standard deviation difference in spine bone mineral density between amenorrheic and eumenorrheic women runners if bone density has a standard deviation of .10 g/cm² in this population and I measured bone density in 20 runners in each group?