Stat 2216 Spring 2016
Statistical Methods R. Claycombe

First Exam

Write all answers in your blue book and show all work there. Return your exam and printout(s) in your blue book.

17 pts.

1) a) Donald does a survey to measure (national) public opinion of him. He does it in New York because that's where he's from and it's less costly to concentrate it there. What kind of sample would we call this? Would you expect this approach to be a good measure of national opinion? Why?

b) Ted does a national telephone survey by calling every 500^{th} person in telephone books from major cities. Would you call this a systematic sample? Why? Is it effectively random? Why?

c) Mario thinks he should do a stratified random sample. What value does this approach have?

d) Hillary wants an email survey. . . .. hah! never mind.

17 pts

2) Use the following trivial population (0,3,6) to illustrate

a) that the sample mean is an unbiased estimator

b) what the standard error of the mean is when n = 2 and sampling is without replacement. Why doesn't $\sigma/n^{1/2}$ work in this case?

17 pts.

3) a) Use Excel to construct a 90% confidence interval for Amount Spent in Lloyd's (chap 8 folder of 12^{th} ed). Do all the work in the spread sheet. Don't forget to type your name into it.

b) Repeat part a using SPSS.

16 pts.

4) Bernie thinks that 60% of the nation wants government health care. A sample proportion shows that only 30% do (n=100). Use this data to his hypothesis at the 1% level of significance. Show all steps to the test.

16 pts

5) Donald is looking for convincing evidence that more than 60% of the nation wants to restrict immigration. If a sample of 100 shows that 70% do, does he have such evidence at the 5% level of significance? Show all steps to the test.

17 pts.

6) We have this very small and simple data set.

C	D
1	2
2	4
3	4

a) Fit the line D = a + bC using formulas. Show work.

b) Use either Excel or SPSS to get the equation and wiite the equation on the spreadsheet.

I have neither given nor received unfair aid on this test nor am I aware of anyone else who has.

_____