Stat 2216 Spring 2015

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.

8 pts.

1) Suppose you have to collect a sample from McDaniel students. Describe how you would do it, presuming that your intent is have a sample that is representative of the population.

20 pts.

2) a) First let's say that the population has the four values {1,2,3,4} and that our samples, trivially, have only 1 value in them. Set up a table where you show all the possible sample means and the probability that they will occur (in repeated sampling). Then find the EV of the sample mean and comment on the valuable property that this illustrates.about sample means.

b) You don't need to do any calculation for this, you can just look at the formulas for σ and $\sigma_{\bar{x}}$; when the sample size is 1, what can you say about these standard deviations? Is this true for larger samples? Why? Don't just say n > 1, say why the sample means are less dispersed.

15 pts.

3) a) If X is normally distributed , has a mean of 10 and a standard deviation of 2, what is the probability that a value of X would be randomly drawn that is 14 or higher.

b) The part a probability is a p value if the null hypotheis is _____ and "X" is the _____ with a value of _____.

15 pts

4) COMPUTER PROBLEM

a) Open "**auto**" in the chapter 8 Excel files with either SPSS or Excel

b) Find a 90 percent confidence interval for the population mean of miles.

c) Print your results (with your name) and be sure that the confidence interval is clearly identified on the printout.

14 pts

5) Suppose the sample mean is 22. Is this convincing evidence that μ is greater than 20, if the sample standard deviation is 10 and the sample size is 25? Show all steps to the test (α=.01).

8 pts.

6) Given this data find the regression line, C = a + bD,

C	D
2	3
4	5
6	6

20 pt

s.

7) Use the display below in two ways to test for a significant relationship. Show all steps to the tests, α = .05.

R Square	0.469519
Standard Error	2.664127

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	50.25543	50.25543	7.080652	0.028763
Residual	8	56.78057	7.097571		
Total	9	107.036			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.274685	0.900374	0.305078	0.768093
S&P 500	0.949793	0.356938	2.660949	0.028763

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

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