

Statistics 2 First Midterm Exam Fall 2002

Printed Name _____

(Please also print your name at the top of each page)

Signature _____

Student ID # _____

Circle your TA: Ellen Chien Chris Furguele Megumi Harada
 Pawel Lasieki John Stambaugh

Circle the time of your section: 9:00 10:00 11:00 12:00 1:00

1	2	3	4	5	6	7	8	9	10	Total

There are 10 problems. A Normal table is at the end of the exam.

1. Suppose that the current average salary of the UC employees who recently went on strike is \$30,000 per year and the SD is \$1000. Suppose that in response to the recent strike, staff salaries are increased by \$3000 per year for each employee. After the raise:
 - [2] The new average will be _____
 - [2] The new SD will be _____

2. Suppose that instead of giving each employee a raise as described in the previous question, each employee is given a 10% raise.
 - [2] The new average will be _____
 - [2] The new SD will be _____

3. The average blood pressure of a group of men is 125 mm and the SD is 15mm. A histogram of the blood pressures is roughly bell shaped.

[2] The percentage of the men with blood pressures greater than 110 mm is approximately equal to _____.

[2] About 25% of the men have blood pressures less than _____.

4. A study compared 11 countries on their consumption of cigarettes in 1930 and rate of lung cancer in 1950. The correlation coefficient between the number of cigarettes consumed per person and the number of deaths per million from lung was 0.73.

[2] Circle one: *True* *False*: The correlation coefficient of 0.73 measures the relationship between the number of cigarettes smoked (in 1930) and chance of dying of lung cancer (in 1950) for individuals in these countries.

5. [2] Student GPAs are on a scale of 0 to 4.0. At a certain university, the average GPA is 3.3 and the standard deviation is 1.0. The percentage of students with GPAs higher than 3.3 is _____ the percentage with GPAs less than 3.3.

Circle one: less than greater than about equal to

6. According to a report by Dr. John Olney in the Journal of Neuropathology and Experimental Neurology, data from the US government show that brain cancer rates jumped 10% shortly after NutraSweet was approved by the Food and Drug Administration for widespread use in 1983.

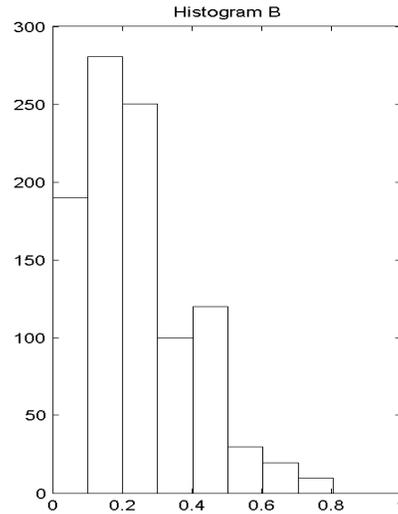
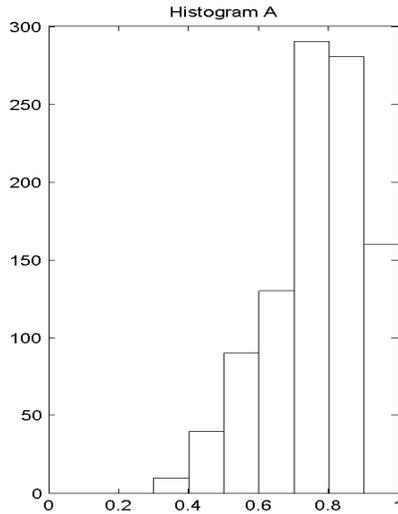
[2] This study was (circle one):

- a. an ecological correlation
- b. an observational study
- c. a simple random sample
- d. a randomized control study

[2] Which of the following statements is best (circle one):

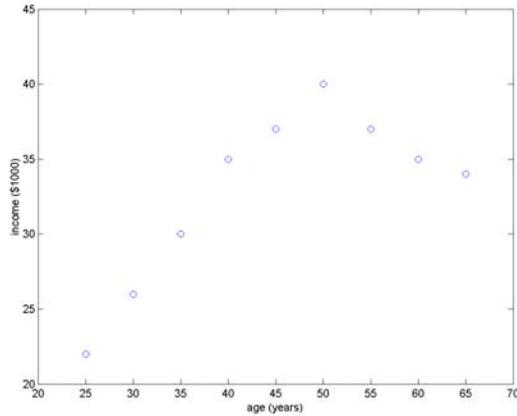
- a. There were randomized controls with placebos
- b. There were no controls
- c. There were randomized controls but there were no placebos
- d. There were controls, but they were not randomized

7. Consider the following two histograms, which are drawn on density scales:



- [2] The mean of histogram B is _____ the mean of histogram A. Circle one (no calculations are needed):
clearly bigger than clearly smaller than about equal to
- [2] The standard deviation of histogram B is _____ the standard deviation of histogram A. Circle one (no calculations are needed):
clearly bigger than clearly smaller than about equal to
- [2] The 90th percentile of histogram A is _____ the 10th percentile of histogram B. Circle one:
clearly bigger than clearly smaller than about equal to
- [2] The standard deviation of histogram B is about _____. Circle one:
0.8 0.5 0.25 0.1
- [2] For the data shown in histogram A, the mean is _____ the median.
Circle one: clearly bigger than clearly smaller than about equal to
- [2] Fill in the blank: About _____% of the data shown in histogram B are between 0.3 and 0.4.
- [2] If the data that went into the two histograms were put together to make one larger data set, what would be the relation of the standard deviation of the new data set to that of the data in histogram A? Circle one:
 - The SDs of the two data sets would be about the same.
 - The SD of the new data set would be smaller.
 - The SD of the new data set would be larger.
 - Can't tell without further information.

8. [2] The following figure shows the results of a 1998 survey of men aged 25-65 who were working full time that year. The figure plots average income in each age group.



The data show that on the average as a man keeps working his income peaks at about age 50 and then declines. Circle one:

- a. False, because this is cross-sectional data
 - b. False, because this is longitudinal data
 - c. True, because this is cross-sectional data
 - d. True, because this is longitudinal data
9. [4] In a study of characteristics of husbands and wives, the average age of wives is 43, the average age of husbands is 46, and both variables have SD's of 13. The correlation coefficient of the ages of wives and husbands is 0.95.

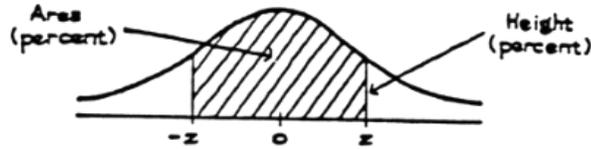
The average age of wives whose husbands are 60 years old is closest to (circle one): 55 56 57 58

10. The first year scores on an exam in a law school have an average of 65 and an SD of 12. The correlation between LSAT scores and first year scores is 0.55 and the scatter diagram is football shaped. The admissions office uses regression to predict first year scores from LSAT scores.

[4] The percentage of students who do better than predicted by 20 or more points is about _____.

[4] Of those students who are in the 25th percentile on the LSAT, the percentage that does better than the overall average on their first year scores is about _____

Table



A NORMAL TABLE

<i>z</i>	<i>Height</i>	<i>Area</i>	<i>z</i>	<i>Height</i>	<i>Area</i>	<i>z</i>	<i>Height</i>	<i>Area</i>
0.00	39.89	0	1.50	12.95	86.64	3.00	0.443	99.730
0.05	39.84	3.99	1.55	12.00	87.89	3.05	0.381	99.771
0.10	39.69	7.97	1.60	11.09	89.04	3.10	0.327	99.806
0.15	39.45	11.92	1.65	10.23	90.11	3.15	0.279	99.837
0.20	39.10	15.85	1.70	9.40	91.09	3.20	0.238	99.863
0.25	38.67	19.74	1.75	8.63	91.99	3.25	0.203	99.885
0.30	38.14	23.58	1.80	7.90	92.81	3.30	0.172	99.903
0.35	37.52	27.37	1.85	7.21	93.57	3.35	0.146	99.919
0.40	36.83	31.08	1.90	6.56	94.26	3.40	0.123	99.933
0.45	36.05	34.73	1.95	5.96	94.88	3.45	0.104	99.944
0.50	35.21	38.29	2.00	5.40	95.45	3.50	0.087	99.953
0.55	34.29	41.77	2.05	4.88	95.96	3.55	0.073	99.961
0.60	33.32	45.15	2.10	4.40	96.43	3.60	0.061	99.968
0.65	32.30	48.43	2.15	3.96	96.84	3.65	0.051	99.974
0.70	31.23	51.61	2.20	3.55	97.22	3.70	0.042	99.978
0.75	30.11	54.67	2.25	3.17	97.56	3.75	0.035	99.982
0.80	28.97	57.63	2.30	2.83	97.86	3.80	0.029	99.986
0.85	27.80	60.47	2.35	2.52	98.12	3.85	0.024	99.988
0.90	26.61	63.19	2.40	2.24	98.36	3.90	0.020	99.990
0.95	25.41	65.79	2.45	1.98	98.57	3.95	0.016	99.992
1.00	24.20	68.27	2.50	1.75	98.76	4.00	0.013	99.9937
1.05	22.99	70.63	2.55	1.54	98.92	4.05	0.011	99.9949
1.10	21.79	72.87	2.60	1.36	99.07	4.10	0.009	99.9959
1.15	20.59	74.99	2.65	1.19	99.20	4.15	0.007	99.9967
1.20	19.42	76.99	2.70	1.04	99.31	4.20	0.006	99.9973
1.25	18.26	78.87	2.75	0.91	99.40	4.25	0.005	99.9979
1.30	17.14	80.64	2.80	0.79	99.49	4.30	0.004	99.9983
1.35	16.04	82.30	2.85	0.69	99.56	4.35	0.003	99.9986
1.40	14.97	83.85	2.90	0.60	99.63	4.40	0.002	99.9989
1.45	13.94	85.29	2.95	0.51	99.68	4.45	0.002	99.9991

