

Assignment #1
Due: Monday, February 9 @ 6pm (FIRM!!)

Please include your name and student number at the top of your assignment

About assignments:

1. Turn in assignments at the start of the class (**after class is late**). **Assignments `dropped off' (i.e., mail or at the Dept) will not be accepted.**
2. Assignments should be hand written neatly, with all pages stapled (not paper clipped) together. **If it can't be read it won't be graded!** Show your work (when calculating a problem involving a formula, you should **show each formula in its basic form** followed by the steps filled in with numbers, and the final answer). Draw appropriate diagrams to illustrate your answer, and label axes as required.
3. For assignment #1 each question is worth 5 points for a maximum total of 30 (weighted 10% of final grade)

1. A political scientist surveyed 20 active members of a small political action group about how many hours they put into the group's activities each week. The results were as follows: 24, 41, 1, 41, 14, 2, 40, 58, 2, 1, 41, 2, 41, 30, 0, 41, 3, 3, 41, 49.

- a). Make a grouped frequency table using 6 intervals from 0-9, 10-19, etc. (show proportions and percentages). Show how you would determine 6 intervals based on the width.
- b). Make a histogram and polygon based on the grouped frequency table.
- c). Describe in words the shape of the histogram.

2. Plot the following hypothetical scores using the appropriate graph for each dataset.

Describe the shape of the distributions **where applicable**. Indicate the scale of measurement and identify the mean, median and mode for each of the 2 datasets (**where appropriate**).

- a) Number of professors based on University Department:

<u>Department</u>	<u>Frequency</u>
Psychology	15
Sociology	10
History	8
English	7
Mathematics	12

- b) A study recorded the number of units produced per hour by 15 factory workers. The results were as follows: 8,10,4,9,9,10,1,9,8,5,9,9,8,7,8.
- Make a frequency table (include proportions and percentages)
 - Make a frequency polygon
 - Describe the shape of the distribution

3. A sample of five high-school English teachers was given a grammar test. Their scores were 17, 19, 14, 20, 20.

- a). Calculate the mean, variance, and standard deviation (using both the definitional and computational formulae for SD).

4. In an Intro Psychology class, all 83 students have completed an aggression rating scale. The possible ratings range from 1-7 with low scores indicating low aggression. Results showed that the average rating was 4.23 with a standard deviation of 1.02. Show your work and plot the location of scores using the normal curve distribution.

- a) What is the percentile rank of a student showing a raw score rating of 3.11?
- b) Which scores are so deviant that the probability of occurrence is 1% or less?
- c) What is the probability and percentage of a raw score of 3.5 or less?
- d) What is the probability and percentage of a raw score of 3.5 or more?

5. A psychologist administered a standard test of symptoms for three different behavioral disorders to a new patient at a mental health clinic. On the scale that measures Disorder A (in the general public, $\mu = 60$, $\sigma = 8$), the person's score is 62. On the scale that measures Disorder B (in the general public, $\mu = 32$, $\sigma = .5$), the person's score is 34. And on the scale that measures Disorder C (in the general public, $\mu = 83$, $\sigma = 12$), the person's score is 89.

- a). For the symptoms of which disorder or disorders does this person score substantially higher than the general public? (Use the normal curve table and be sure to include a diagram of the normal distribution plotting your 3 obtained scores).
- b. Explain your answers and procedure.

6. A business uses a 7-point scale about satisfaction with the services it provides to clients. The ratings are normally distributed with a mean = 4.8 and standard deviation = .5.

- a). What percentage of clients rates their satisfaction above 5? Above 6? Above 4? Between 4 and 5? (Use the normal curve table and be sure to include a diagram showing location of z-scores).
- b). Explain your answers and procedure.

**FINAL NOTE: Show all work in this assignment!
Late Assignments are not accepted.**