

**Soc 3811 Basic Social Statistics
First Midterm Exam Spring 2010**

Your Name [50 points]: _____ ID #: _____

Your TA: Kyungmin Baek _____ Meghan Zacher _____ Frank Zhang _____

INSTRUCTIONS:

(A) Write your name on the line at top front of every sheet.

(B) If you use a page of notes in taking this exam, sign & insert it inside this booklet before turning in your exam.

(C) Show your calculations for numerical problems in the space provided!

1. Fill in the blanks [1 point each]:

a. The graph of an continuous variable is called a(n)

_____.

b. Descriptive statistics that describe the value most typical of the scores in a frequency distribution are called

_____.

c. Variables like EDUC and AGE, which could have all possible numerical values in a given interval, are called

_____.

d. A variable that classifies persons, objects, or events into two mutually exclusive and exhaustive categories is called a(n)

_____.

e. Many card games assign increasing values to the four face cards: Jack, Queen, King, Ace. What type of variable is this?

_____.

2. This table shows responses to the 2008 GSS variable THEISM, “There is a God who concerns Himself with every human being personally.” Complete the last two columns of the table and report the modal category. [5 points]:

	CATEGORY	Frequency (f_i)	Percent (%)	Valid Percent (%)
Valid	1. Strongly agree	578		
	2. Agree	368		
	3. Neither agree nor disagree	185		
	4. Disagree	136		
	5. Strongly disagree	76		
	Total	1,343		
Missing	0. IAP	658		
	9. No answer, don't know	22		
	Total	680		
TOTAL		2,023		

MODE: _____

Your name: _____

3. This table displays POLVIEWS in the 2008 GSS. Calculate cumulative frequencies, valid percentages, cumulative percentages, and report the median. [5 points]:

DO YOU THINK OF YOURSELF AS LIBERAL OR CONSERVATIVE?	Frequency (f)	Cumulative Frequency (cf)	Valid Percent (%)	Cumulative Percent (c%)
1. Extremely liberal	69			
2. Liberal	240			
3. Slightly liberal	221			
4. Moderate	740			
5. Slightly conservative	268			
6. Conservative	327			
7. Extremely conservative	68			
TOTAL	1,933			
8. Don't Know	77			
9. No Answer	13			
TOTAL	2,023			

MEDIAN: _____

4. Calculate the Index of Diversity and Index of Qualitative Variation for this table showing 2008 GSS variable SCISTUDY, which asked how well the respondents understand the term “scientific study.” [5 points]

	SCISTUDY	Frequency (f)	Percent (%)	Valid Percent (%)
Valid	1. Clear understanding	424	21.0	28.6
	2. General sense	749	37.0	50.5
	3. Little understanding	309	15.3	20.9
	Total	1,482	73.3	100.0
Missing	9. IAP; DK, NA	541	26.7	
TOTAL		2,023	100.0	

D: _____ IQV: _____

Your name: _____

5. Calculate the mean, median, mode, and range of an ungrouped variable with these scores. [5 points]

$$\begin{array}{lll} \mathbf{Y_1 = 3} & \mathbf{Y_4 = 5} & \mathbf{Y_7 = 7} \\ \mathbf{Y_2 = 5} & \mathbf{Y_5 = 9} & \mathbf{Y_8 = 5} \\ \mathbf{Y_3 = 7} & \mathbf{Y_6 = 11} & \mathbf{Y_9 = 11} \end{array}$$

MODE: _____ **MEDIAN:** _____ **MEAN:** _____ **RANGE:** _____

6. Now calculate the variance and standard deviation for the same ungrouped data in question 5. [5 points]

$$\begin{array}{lll} \mathbf{Y_1 = 3} & \mathbf{Y_4 = 5} & \mathbf{Y_7 = 7} \\ \mathbf{Y_2 = 5} & \mathbf{Y_5 = 9} & \mathbf{Y_8 = 5} \\ \mathbf{Y_3 = 7} & \mathbf{Y_6 = 11} & \mathbf{Y_9 = 11} \end{array}$$

VARIANCE: _____ STAND. DEV. _____

Your name: _____

7. This table shows how often people pray. Find the mode and median. Then write an interpretation of those two central tendency statistics, explaining which measure more accurately describes how often people pray. [5 points]

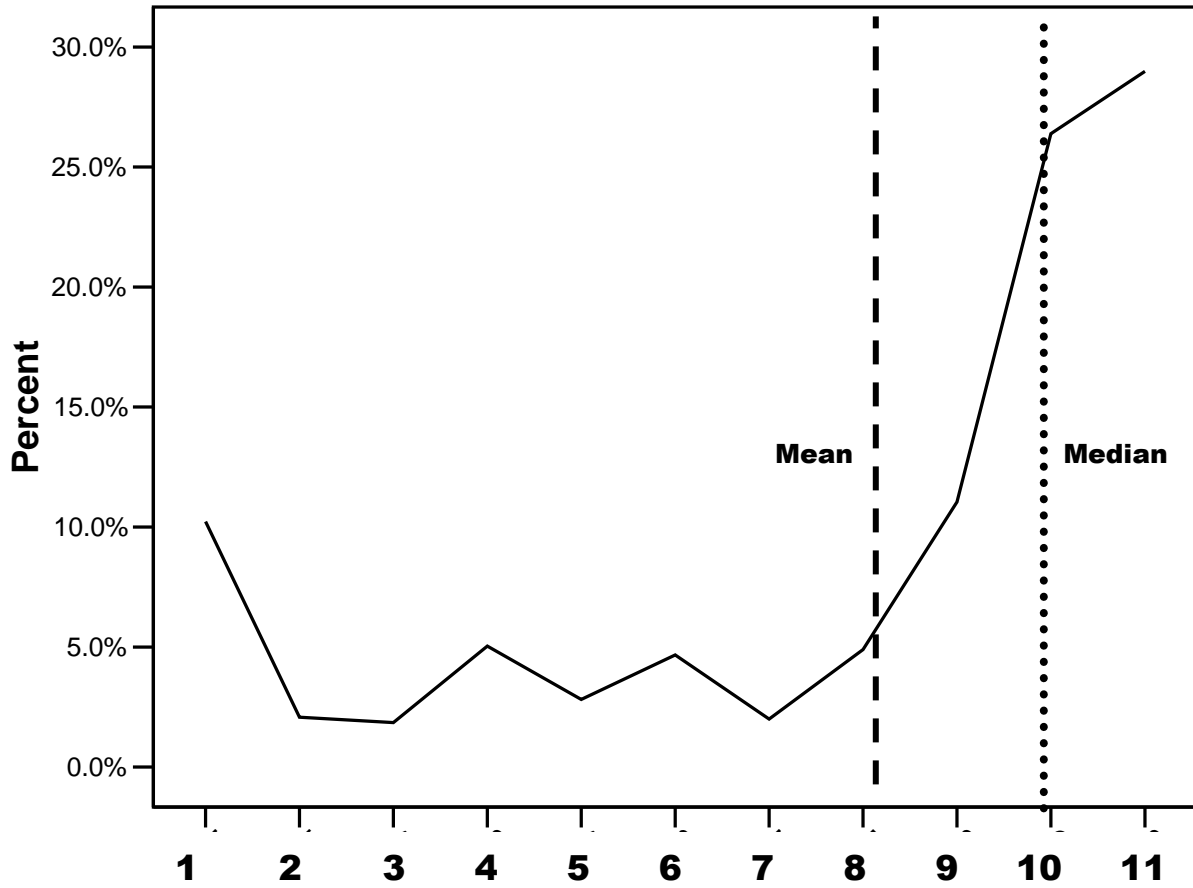
HOW OFTEN DOES R PRAY				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1. Never	138	6.8	10.2	10.2
2. Less than once a week	28	1.4	2.1	12.3
3. About 1-2 times per year	25	1.2	1.9	14.2
4. Several times a year	68	3.4	5.0	19.2
5. About once a month	38	1.9	2.8	22.0
6. 2-3 times per month	63	3.1	4.7	26.7
7. Nearly every week	27	1.3	2.0	28.7
8. Every week	66	3.3	4.9	33.6
9. Several times a week	237	11.7	17.6	51.2
10. Once a day	268	13.2	19.9	71.1
11. Several times a day	391	19.3	29.0	100.0
Total	1,349	66.7	100.0	
Missing				
9. INAP, DK, NA	674	33.3		
TOTAL	2,023	100.0		

MODE: _____

MEDIAN: _____

INTERPRETATION:

8. This graph, using using different frequencies than in problem #7, has these descriptive statistics for praying: mean = 8.2; median = 10.0; variance = 11.2. Calculate skewness and interpret the graph's shape, including the type of skew. [5 points]



SKEWNESS: _____

INTERPRETATION: _____

9. This table displays the number of books bought by 60 students last month. The mean is 3.00. Calculate the variance and standard deviation for this grouped frequency distribution. [5 points]

NUMBER OF BOOKS	
Score (Y_i)	Frequency (f_i)
1	4
2	13
3	30
4	5
5	8
TOTAL	60

VARIANCE: _____ **STAND. DEV.** _____

10. The 2008 GSS variable SIBS (“How many brothers and sisters did you have?”) has these descriptive statistics for 2,021 respondents: mode = 2; median = 3; mean = 3.6; range = 55; variance = 10.2. Calculate the standardized scores (Z_i scores) for three respondents with these numbers of siblings (Y_i). [5 points]

Y_i **Z_i**

1 _____

5 _____

12 _____

Calculate the expected number of siblings (Y_i) for two respondents with these Z_i scores.

Z_i **Y_i**

-0.4 _____

+2.2 _____