**POLS 095**

**Methods in Politics**

**Spring 2022**

**Homework 2**

**Due March 11, 2022**

*Directions:* There are two separate components to this Worksheet. First, there are the questions located in this document. Second, there are questions that are to be completed in R, which can be found in the accompanying R script. You can answer the questions directly in their appropriate documents and submit both via Blackboard. There are a total of 175 points on this homework. Your grade, as recorded in the gradebook, is the percentage of points earned out of 175.

1. Write the definitions of the following key terms. Be as brief and clear as possible to demonstrate you understand each of the concepts. (1 pt. each, 5 points total)

* 1. Aggregate-level unit of analysis
     + Answer:
  2. Multidimensional concept
     + Answer:

1. Direct or positive relationship
   * + Answer:
2. Line chart
   * + Answer:
3. Validity
   * + Answer:
4. Cross-sectional study
   * + Answer:
5. Variable
   * + Answer:

2. Suppose that you are working with the state to assess how different communities across Iowa are delivering health care. You develop a working hypothesis that more urban counties have more access to health care services. In order to move forward, however, you need to come up with a definition for “access to health care.” Using the form we used in class (and can be found in the lecture slides), and provide an inventory of the characteristics that might be used to define this concept. Provide at least five characteristics under each. (20 pts.)

1. A county with access to health care: A county without access to health care:

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1. Discuss and explain which characteristics you believe are central to the concept and which are not essential for the conceptual definition. Then, state the conceptual definition using the form from class (is also on Blackboard). (15 pts.)
   * Answer:

3. A new line of research investigates how personality and lifestyle traits correlate with political ideology. In the past, this research has suggested that liberals live in “less organized” homes and are more likely to enjoy jazz music, while conservatives are more likely to keep a personal organizer and more likely to drink “brown liquors” than “clear liquors.” You’ve just come across a separate piece of research that suggests that dog ownership is connected to economic development:

Dog ownership, [like cocaine use](http://qz.com/5058/brazil-now-consumes-18-of-worlds-cocaine/), can be seen as an economic indicator. As incomes rise, some people can afford to have pets for the first time, while others decide they can spring for new toys, trips to the groomer, or pricey organic kibbles. On a macro level, as countries develop, new industries—dog shows, puppy hotels—grow up around dog doting and pampering. Unsurprisingly, the US remains the paragon of dog love, with the world’s biggest pet pooch population in both absolute and per capita terms (one dog for every four Americans). But elsewhere, dogs are on the rise, and the rapid changes in the extent and nature of ownership reflect new economic realities (Bradley and King 2012).

This leads you to think that pet ownership, like other personality and lifestyle traits, might be related to ideology. Your own experience suggests that people who are younger, more exercise-conscious, rural, and wealthier are more likely to own dogs while people who are older, more sedate, urban, and poorer are more likely to own cats. But this would perhaps also lead to contradictory predictions about whether conservatives or liberals are more likely to own a dog rather than a cat. So you decide to embark on research to examine the question, doing a survey and asking a series of questions. To do so, you need to devise measurement strategies for your variables. Here are some measurement options. For each one, (1) indicate the current level of measurement, (2) note any problems that you see with the suggested measurement strategy, and (3) if you believe there is a better strategy, propose an alternative that might be a better way to measure the variable and explain why. (10 pts. each, 5 for type, 5 for improvement)

1. Wealth: For each person, record their annual income based on the following: 1 = less than $25,000 per year; 2 = $25,000-$40,000 per year; 3 = $40,000-$65,000 per year; 4 = $65,000-$100,000 per year; 5 = more than $100,000 per year.

* Type:
* Example of Improvement:

1. Pet ownership: For each person, record whether they own a cat or a dog, based on the following: 1 = cat; 2 = dog.

* Type:
* Example of Improvement:

1. Exercise regime: For each person, record whether they exercise regularly, based on the following: 0 = no exercise; 1 = exercise once per week; 2 = exercise twice per week; 3 = exercise three times per week; 4 = exercise four or more times per week.

* Type:
* Example of Improvement:

1. Ideology: For each person, record who they voted for in 2016: 1 = Donald Trump; 2 = Hillary Clinton.

* Type:
* Example of Improvement:

4. In the course of your research (from #3), you find that nationally, counties that are more rural also have higher rates of dog ownership than counties that are more urban. What do these national statistics tell you about your claim that individuals living in rural areas are more likely to own dogs? (20 pts.)

* Answer:

5. Identify the mean, median, and mode of the following set of numbers: 6, 3, 12, 6, 2, 5, 8 (10 points: 4 pts. mean, 3 pts. median, 3 pts. mode)

* Mean:
* Median:
* Mode:

Questions 6 (50 pts.) and 7 (15 pts.) are located in the accompanying hw2.R script file. Your answers should be typed in that R script and submitted via Blackboard along with this worksheet.