1) (X Points)

In the development politics sector, the effectiveness of deworming was long debated. Intestinal helminths, tapeworms, infect more than a quarter of the population worldwide. Deworming drugs are relatively inexpensive. Development practitioners long debated deworming programs but the benefits on health were not known. Therefore, a program in Kenya randomly treated students with deworming drugs and not others. The students health level was measured on a continuous scale.

1. Come up with a null and an alternative hypothesis.

2. How would you test the experiment? Describe which method you would use and how you would decide which hypothesis is more credible.

2) (X Points)

You analyse whether peacekeepers help improve political stability in the countries they were sent to. Your research associates have measured political stability in 30 post-conflict countries, 15 of which are countries were peacekeepers had been deployed. Political stability is measured on a scale from 0 to 100 where larger values correspond to more stability.

The values for stability in countries without peacekeepers are: 58, 13, 41, 6, 30, 46, 1, 10, 7, 49, 23, 38, 46, 15, and 23.

The values for stability in countries with peacekeepers are: 63, 54, 45, 60, 22, 33, 30, 61, 63, 62, 33, 20, 52, 58, 45.

1. Compute the appropriate measures of central tendency and dispersion.

2. Your theory suggests that peacekeeping facilitates state-building. Formulate a null hypothesis and an alternative hypothesis from your theory and calculate the difference in means.

3. Carry out the null hypothesis test assuming that the critical value of t to reject the null at an alpha level of 0.05 is 2.05. Interpret the result.

Hint: The formula of the standard error for the difference in means is:

$$\sqrt{\frac{\sigma_{Xa}^2}{n_a} + \frac{\sigma_{Xb}^2}{n_b}}$$

where a and b correspond to the two groups in the data.

1

3) (X Points)

A team of researchers sets out on an ambitious project. They want to test the effects of absolute and relative wealth on well-being. To do so, they randomly sample 1000 sub-national regions out of all regions in the world. For each region, they measure satisfaction with life (well-being) on a 0-100 scale where 100 is the happiest. To capture absolute wealth, they collect data on GDP/capita in each region in 1000 US dollars. Relative wealth is measured using the Gini-index. It ranges from 0-100, where 100 implies that all wealth is in the hands of one person and 0 implies perfect equality. They produced a dataset containing the three variable (uploaded on our website) and fitted a linear model to test the relationships. The results are in table 1.

- *Life Satisfaction* 0-100 (100 most happy)

- *Gini Goefficient* 0-100 (100 = 1 person owns everything, 0 - everyone owns the same)

- *GDP/captia* in 1000 US dollars

Table 1: Regression on Life Satisfaction

	Model 1
(Intercept)	66.26
	(0.60)
Gini coefficient	-0.52
	(0.01)
GDP/capita	1.74
	(0.02)
R^2	0.90
Adj. R^2	0.90
Num. obs.	1000
RMSE	5.17

Questions

1. Formulate hypotheses for both wealth variables and justify them.

2. Create scatter plots for the relation between absolute wealth and happiness and relative wealth and happiness. Discus the scatter plots.

3. Interpret the regression table.

4. Discuss the intercept in technical and substantive terms.

5. Should we predict life satisfaction given a Gini coefficient of 85 based on our model? If so, what is the prediction? If not, why?

6. Is the relationship between absolute wealth and happiness well described by a line?