ECON5360: Pre-Test

Name:

1. What is the difference between estimate and estimator?

2. What is the difference between unbiasedness and consistency?

3. Why is measurement error bad?

4. What is GLS?

5. Which property of the OLS estimator depends on the lack of correlation between independent variables and the error term?

6. What is heteroscedasticity and why is it bad?

7. What is efficiency?

8. How do you understand the tradeoff between consistency and efficiency?

9. Imagine that after estimating the following regression model on a sample of 126 undergraduate students

$$\text{FINALGRADE}_i = \alpha + \beta \text{ATTENDANCE}_i + \varepsilon_i$$

you found that $\hat{\beta} = 1.5$ and that the p-value of the estimated coefficient is 0.06. What *exactly* do these magnitudes mean? Discuss the null hypothesis for which the p-value is reported.

10. Continuing with the above question, how do you interpret the error term ε_i?

11. In the above model of final grade based on attendance you probably missed some important variables (such as student's effort) which are not observable but might be correlated with attendance. What is the consequence of omitting the variables that affect the grade but are correlated with the observed regressors? Be as specific as you can, i.e. do not just state that there is an omitted variable bias.

12. What is a dummy variable?

13. Assume that we augment the above-mentioned model to account for gender by including a gender dummy in the following way

$$\text{FINALGRADE}_i = \alpha + \beta \text{ATTENDANCE}_i + \gamma \text{GENDER}_i + \delta \text{GENDER}_i \times \text{ATTENDANCE}_i + \varepsilon_i$$

How would you interpret the estimated magnitude of δ