Political Science 202
Introduction to Political Analysis
Fall 2021: Problem Set #8

Due in Turnitin (Blackboard) on Friday, December 3 at 10am. 5 points in total. HOMEWORK MUST BE TYPED IN ITS ENTIRETY. Late submissions are penalized with 1 point per 24 hours. MAKE SURE THAT YOU RECEIVED THE TURNITIN UPLOAD CONFIRMATION and SAVE THE CONFIRMATION. If you have trouble uploading to Turnitin or don't receive a confirmation, email as an attachment to your TA before the deadline. If you don't get a reply confirming that you handed it in, send it again.

1. There are two types of electoral systems: Proportional representation (PR), where the share of seats of each party in the legislature is proportional to its vote share; and majoritarian systems, where the country is divided into electoral districts and the candidates who receive the most votes in their district are elected. Prof. Katharine hypothesizes that electoral systems affect turnout: In a comparison of countries, countries with PR systems will have higher turnouts than will countries with majoritarian systems. Level of economic development is an important control variable, because development, measured as gross domestic product (GDP) per capita, is known to be an alternative cause of voter participation. Therefore, she evaluates the electoral system–turnout relationship, controlling for per capita GDP.

   Among countries with low per capita GDP, the mean levels of turnout are as follows: majoritarian countries, 56.1 percent; PR countries, 69.8 percent. Among countries with high GDP per capita: majoritarian countries, 66.0 percent; PR countries, 68.5 percent.

   a) Construct a mean comparison control table from the information provided.
   b) Decide which pattern—spuriousness, additive, or interaction—best describes the set of relationships. Write a complete sentence explaining your answer.

2. Professor Simon is a consultant for an NBA team. He is preparing for the upcoming draft, in which his team can choose a player from a list of college basketball players. The team's general manager (GM) wants to draft a player for the center position who can score many points. The GM asks Prof. Simon which center the team should draft. Prof. Simon decides to find out what factors explain how good a college basketball player later is once he plays in the NBA. He collects data on all players that were drafted in the last 10 years and conducts a multiple regression analysis. His dependent variable is the average number of points per game that a player scored in his first NBA season. The independent variables are:

   - Points/game in college: The number of points per game that a player scored in college
   - Height (in inches)
   - Age

The regression equation and the table of regression coefficients are presented below:

Points/game in NBA = a + b1 · Points/game in college + b2 · Height + b3 · Age

Variable	**Coefficient**	**Standard Error**
Points/game, college	0.3	0.1
Height	0.1	0.08
Age	-1	3
Intercept	19	3

a) Interpret the substantive meaning of the coefficient of point/game in college. Can we reject the null hypothesis?
b) Interpret the substantive meaning of the coefficient of height. Can we reject the null hypothesis?
c) Interpret the substantive meaning of the coefficient of age. Can we reject the null hypothesis?