Midterm 2 – ECON 3311, Spring 2025 Name:___________________________

Student ID: _______________________

Show your work. Make sure to provide explanations to your answers for full credit.

----

1. **Suppose the economy is in the midst of a recession, similar to the situation that the US found itself in during the Great Recession.**

   a. **If the government wants to increase spending to try and get the economy out of the recession, why is it important to know what the multiplier is? (8 points)**

   b. **If an increase in 2% in government spending ($\bar{a}_g$ increased by 2%) caused an increase in short term output of 6%, what is the value of $\bar{x}$? (6 points)**

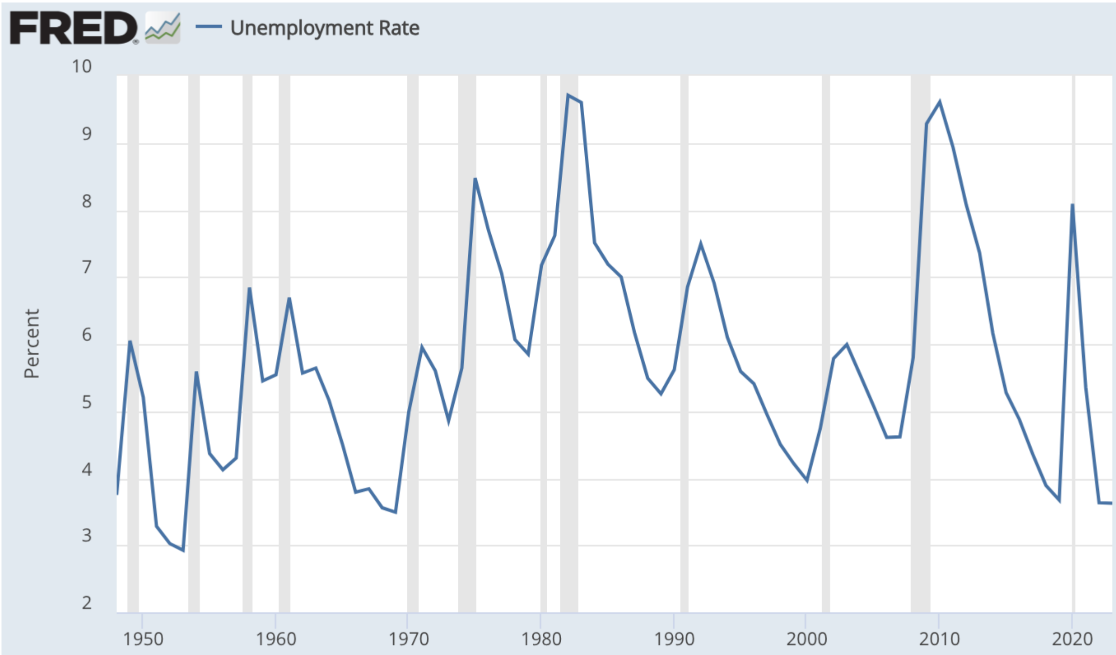
2. **The Federal Reserve (central bank in the US) sets nominal interest rates in an economy.**

   a. **If the Federal Reserve sets nominal interest rates, how is it able to affect real interest rates? What assumption is needed to argue that the Fed can influence real interest rates? Briefly explain. (8 points)**

b. **How does the relationship between the real interest rate and the marginal product of capital affect investment spending? Briefly explain. (8 points)**

3. **High rates of inflation can be extremely costly for countries. Why is it the case that in countries where governments have a harder time borrowing money and raising taxes, it is more likely that we will see higher rates of inflation? Briefly explain. (Hint: Think about the ways in which governments can finance their spending) (8 points)**

4. **The following graph depicts the unemployment rate over time.**



Source: U.S. Bureau of Labor Statistics

One of the relationships we talked in class was between the unemployment rate and short-run fluctuations in GDP.

a. **What 'law' is used to depict this relationship and what does it predict regarding the correlation between unemployment and GDP? (6 points)**

b. **How would we have to change the unemployment measure depicted in this graph to relate it to changes in short-run output using your response from part 'a'? Briefly explain. (6 points)**

5. **Suppose that the inflation rate in a country decreased from 2015 to 2018, and suppose that the original cause of this was a change in interest rates initiated by the central bank.**

   Explain how a change in interest rates could have caused a decrease in the inflation rate using the IS-MP graph <u>and</u> the Phillips curve graph. Make sure to label all relevant points, axes, curves, etc. and explain in words what change in happening in each graph. (24 points)

6. **Suppose the government decreases defense spending. Suppose the economy starts out where $\tilde{Y}$= 0 and the real interest rate is equal to the marginal product of capital.**

   a. **Graphically depict what would happen to the IS curve in this situation. Make sure to label all of the relevant points (axes, curves, etc.) on your graph. (6 points)**

   b. **Why did you draw the IS curve with the slope (negative, positive, horizontal, vertical) that you did in part 'a'? Briefly explain. (6 points)**

   c. **How would the change in the IS curve in part 'a' be different if consumers (consumption spending) reacted more strongly to changes in $\tilde{Y}$? Explain your answer and focus only on the change in the IS curve. (8 points)**

d. Ignore part 'c'. How would the graph look different if $\bar{b}$ in the IS equation were lower? What is the significance of a lower value for $\bar{b}$ in terms of the relationship between interest rates and short-run output? Explain your answer in words. (6 points)

Bonus

The following four statements are false. Briefly explain what needs to change in each statement in order to make it correct.

I. $\bar{a}$ is equal to 1 and if it drops below 1 then this is considered a macroeconomic shock.

II. When the nominal interest rate is less than the marginal product of capital, then firms will increase their investment spending.

III. If the current output is equal to potential output, then the inflation rate is equal to 0.

IV. If the current output is lower to potential output, then the prices (of goods and services) are decreasing.