

Please submit your examination on April 13 by noon. Exams should be submitted to my office (257 Dwire Hall) or via email attachment (ddeboer@uccs.edu). Late submissions will receive a 10 percent grade reduction. Please note that we do not have a class meeting on April 13; however, I will be in my office from 8.45 to 10.30 to address questions.

1. Romerland engages in significant research and development every year; in fact, $\frac{1}{4}$ of all labor is focused on R&D. Romerland is characterized by the following information:

$$Y = K^{0.25}(AL^Y)^{0.75}$$

$$\Delta A = A^\eta L^R$$

$$\eta = 0.5$$

$$n^Y = n^R = 0\%$$

$$s = 12\%$$

$$\delta = 8\%$$

$$k^* = \frac{K}{AL^Y} = 1 \text{ initially}$$

- a. How rapidly will it grow when $L^R = 0.5$ and A is initially 1?
 - b. What is the rate of growth the next period?
2. The Island of Simple is characterized by the following information:

$$C = 100 + 0.5(Y - t \cdot Y)$$

$$t = 20\%$$

$$I = 200 - 8r$$

$$G = 250$$

$$\frac{M}{P} = 500$$

$$L = 500$$

$$\iota = 15$$

$$v = 2$$

- a. Solve for the equilibrium levels of r and Y .
 - b. How would the equilibrium change if G increased to 350?
3. The Principality of Taxastan is characterized by the following information:

$$C = 100 + 0.9(Y - t \cdot Y)$$

$$t = 75\%$$

$$I = 500 - 10r$$

$$G = 500$$

$$\frac{M}{P} = 2500$$

$$L = 1000$$

$$\iota = 15$$

$$v = 2$$

- a. Solve for the equilibrium levels of r and Y .
 - b. How would the equilibrium change if M/P increased to 2750?
4. Discuss the efficacy of fiscal and monetary policy if ι (the interest rate coefficient in the demand for liquidity function) is 0. How would it change as ι approached infinity in value?

5. Between 1970 and 2003, the highest marginal tax rate fell from 70% to 35%. What does this movement in tax rates imply about the efficacy of fiscal and monetary policy?
6. Using appropriate graphical analysis and a numerical example of your own construction, illustrate what a positive supply side shock that increases employment (for instance, a reduction in the tax “wedge”) will do to an economy in the short- and long-run. In your answer, consider both static and dynamic effects.
7. Using the IS/PC/MR dynamic model, graphically indicate how each of the following changes will alter the economy. Begin the analysis from a point of long-run equilibrium. Provide a short explanation of any changes to the economy.
 - a. Assuming that the central bank uses an inflation rule, what is the impact of an increase in government expenditures?
 - b. Assuming that the central bank uses an output-inflation trade-off rule, what is the impact of an increase in consumer confidence?
 - c. Assuming that the central bank uses an inflation rule, what is the impact of a reduction in that rule?
8. Using the WS/PS model of the labor market, graphically indicate the effect of each of the following changes. Additionally, indicate the effect on employment, voluntary unemployment and involuntary unemployment.
 - a. An increase in unemployment benefits
 - b. A fall in union activity
 - c. An increase in labor productivity
 - d. An increase in output market competition
9. The Central Bank of Bob has the loss function indicated below. It faces an Inflation Augmented PC curve with the functional form below. Explain what policy the Central Bank should follow if inflation in the previous period was 5%. How will this change over time?

$$L = (g_y - 3\%)^2 + (\pi - 1\%)^2$$

$$PC : \pi = \pi_{t-1} + \frac{1}{2} g_y$$

10. Assume that the real interest rate has a fixed value of 5%. If the long term sustainable real growth rate of the economy is 3% per year, explain what is likely to happen to the Debt Ratio over time. What actions would be required to alter this pattern of change?