Instructions: Answer all questions. Show work where requested. No books, notes, or electronic devices. Calculators are allowed. Circle one answer for single-answer questions; mark all that apply for many-answer questions.

Page:	2	3	4	5	6	7	8	9	Total
Points:	21	16	21	12	10	12	15	12	119
Score:									

Time: 120 minutes **Total Points:** 119

Name: _____

1. Recall the Keynesian Cross model.
   (a) (3 points) Write down an equation for planned aggregate expenditure.
   (b) (3 points) Write down an equation for consumption as a function of income. Justify each piece of that equation.
   (c) (3 points) Substitute your equation for consumption into aggregate expenditure. Solve for GDP.
   (d) (3 points) Graph your aggregate expenditure model with expenditure on the y-axis and GDP on the x-axis.
   (e) (3 points) Suppose the economy is in static equilibrium. Where is that equilibrium graphically? Why is that the equilibrium?
   (f) (3 points) Now, suppose that that households are more pessimistic about the future in general, but do not change the portion of disposable income they consume. Graphically demonstrate the new static equilibrium and how the economy arrives at that new static equilibrium.
   (g) (3 points) Explain in words the economic logic behind the movements in (f).

2. Suppose that aggregate expenditure is given by:

$$Y = \frac{1}{1 - MPC}\left(A + MPC(TR - T) + I + G\right)$$

Now suppose that G automatically moves to stabilize output:

$$G = G_0 - g(Y - Y_p)$$

where G_0 is a constant amount of government spending and Y_p is potential output.

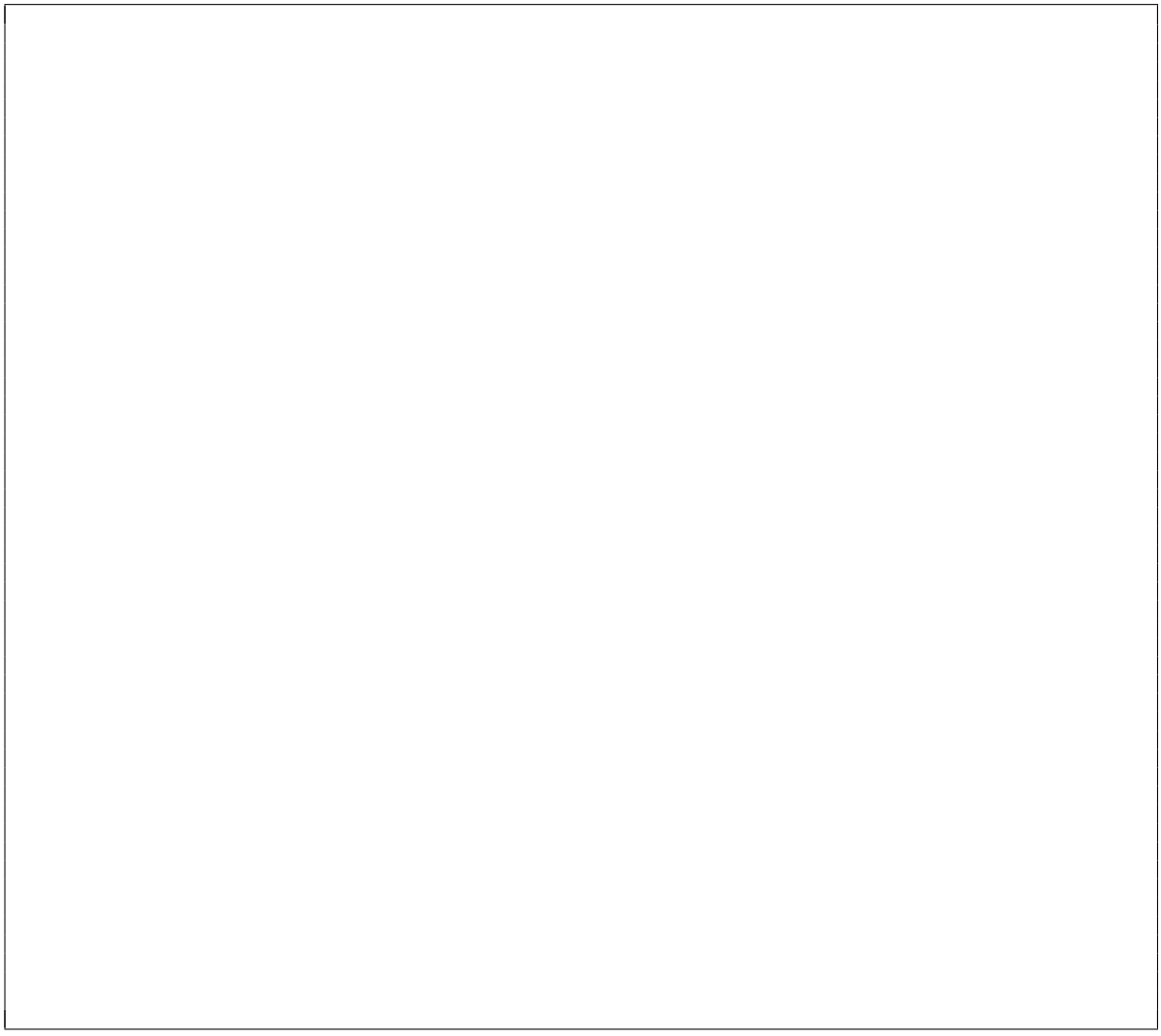
(a) (4 points) Solve for Y.

(b) (4 points) Compare the multiplier on A from when G was exogenous to the multiplier on A now. Interpret the difference, ensuring you discuss automatic stabilizers in your answer.

(c) (4 points) What is the multiplier on g?

(d) (4 points) Suppose that $MPC = 0.6$ and $g = 0.1$. If A increases by 10% from an initial value of 1, what is the increase in Y? What happens to total G (in percent terms)?

3. Recall the AD-AS model.
   (a) (3 points) Suppose we want to graph planned aggregate expenditure in (Y, π) space. How would the aggregate expenditure curve look? Why would it look that way?
   (b) (3 points) Draw the AD-AS model assuming the Keynesian Cross model is all that matters for equilibrium output. How would SRAS look in (Y, π) space?
   (c) (3 points) Add LRAS to the AD-AS model graph. Justify why LRAS looks the way it does in (Y, π) space.
   (d) (3 points) Write down Okun's Law. Explain it economically.
   (e) (3 points) Write down the full Phillips Curve. Explain it economically.
   (f) (3 points) Derive an expression for SRAS. Plot this new SRAS curve on your graph in part (b).
   (g) (3 points) Explain why the equation you derived in part (f) is indeed the SRAS curve. Tie your explanation to why we argued that the SRAS curve should slope up in (Y, π) space, and what would shift the SRAS curve.



4. Recall the AD-AS model.
   (a) (3 points) Suppose that government spending exogenously increases. Graphically illustrate what happens in the short-run.
   (b) (3 points) Suppose that monetary policy does not adjust. Graphically illustrate what happens in the long-run. Explain the intuition.
   (c) (3 points) Now suppose that the Federal Reserve increases interest rates. How does this change the long-run impact of the shock?
   (d) (3 points) If you were looking to study the size of the fiscal multiplier, what value would the multiplier look like here?

5. (3 points) What is the Federal Reserve's dual mandate? Which goal does the Federal Reserve tend to prioritize?

6. (3 points) What changed pre-2008 to post-2008 in terms of monetary policy? How does the Federal Reserve generally conduct monetary policy now (this can be brief)?

7. (4 points) For each of the following assets, indicate the narrowest monetary aggregate (M0, M1, or M2) that includes it.

Asset / Statement	**M0**	**M1**	**M2**
Nick's Patio has a drawer full of dollar bills for making change.	☐	☐	☐
My paycheck is direct-deposited into a savings account at my local bank. I move money from that account into checking when I need to spend.	☐	☐	☐
I bought a one-year $5,000 certificate of deposit (CD) at my bank. It is a small-denomination time deposit and I pay a penalty if I withdraw early.	☐	☐	☐
The Overlook keeps part of its reserve fund in a money market mutual fund at a brokerage, which invests in short-term safe assets.	☐	☐	☐

8. (6 points) Explain how the Federal Open Market Committee conducted monetary policy pre-2008. Graphically demonstrate this movement in the money market. Explain intuitively why you drew the M_s curve the way you did.

9. (6 points) Explain the long-run neutrality of money in words and demonstrate that neutrality graphically using AD-AS and the money market. Make sure you use the equation for money demand.

10. Recall the government budget constraint:

$$B_t = (1+r)B_{t-1} + G_t + TR_t - T_t$$

(a) (3 points) Interpret the government budget constraint in words.

(b) (3 points) What are three ways for the government to shrink the total amount of debt?

(c) (3 points) Divide the budget constraint by GDP. Find the growth rate of government debt to GDP.

(d) (3 points) What does your growth rate equation imply about why the US debt-to-GDP number is increasing?

(e) (3 points) Recall from class the data on government outlays. Which category was growing fastest? What are some ways to solve this problem?

11. Recall the AD-AS model, the money market, the Phillips Curve, and the loanable-funds market. Suppose that a temporary negative oil shock hits the economy.

    (a) (6 points) In the short-run, graph what happens in each market (hint: you may have to analyze what happens to national savings before going to the money market). Then assume the Fed leans against inflation and show what happens next.

    (b) (6 points) In the long-run, graph what happens in each market. Assume the Fed continues to lean against inflation (or against deflation).