Practice questions and learning objectives
Econ 3150, Spring 2016

You must explain every answer. If you just write "false" or draw a vague picture, you will get no credit.

Key: Very important ⇒ Important ⇒ Somewhat Important ⇒ Less important

1 Data and long-run

1.1. [Somewhat important and easy] GDP definition and measurement:

(1.1.1) Give an example of a purchase in the US that would not be counted in US GDP and explain why it is not counted

(1.1.2) Why are Social Security payments not counted in GDP?

1.2. [Important] When comparing human wellbeing between the US and Afghanistan, why might GDP per person in Afghanistan severely underestimate their quality of life?

1.3. [Less important] How does an externality from education contribute to long-run growth?

1.4. [Very important] Use the Solow model to show what will happen to the economy in each of the following scenarios. Specifically, show what will happen to saving, consumption, incomes, and the capital stock immediately and in the long run and how these variables will transition to the long run.

(1.4.1) Later today an alien space ship comes to Earth and gives each person a new laptop. These are not special laptops; they are what you could buy online today. The benevolent aliens simply saw these ubiquitous machines and thought that we liked them and so manufactured some for us.

(1.4.2) We develop a new industrial lubricant that makes machines last longer (*ceteris paribus*: the lubricant does *not* make machines more productive).

(1.4.3) Jesus comes back and tells everyone that Catholics are right about birth control.

1.5. [Very important] Plot a graph showing how Solow Model steady state consumption relates to the saving rate. *Hint: the saving rate should be on the horizontal axis, and steady-state consumption should be on the vertical axis.*

1.6. [Less important] Rank these components of GDP in terms of their size as a proportion of GDP in the US (and most high-income nations):

(1.6.1) Consumption

(1.6.2) Investment

(1.6.3) Government purchases

1.7. [Slightly important] True or false: legalizing marijuana will raise GDP because we will be able to tax and regulate it.

1.8. [Less important and hard] Suppose that country A starts out with more technology (higher total factor productivity) than country B but that their technologies grow at the same constant rate g. Assume also that their saving rates, depreciation rates, population growth rates, and capital stocks are the same. How do their incomes compare? Will their incomes converge over time?

1.9. [Very important] True, false, or uncertain: the Solow model shows us that changes in technology rather than purchases of capital are the source of the long-run economic growth much of the world has enjoyed over the last two centuries.

1.10. [Very important] Use the Solow model to show why technological growth is necessary for long-run growth.

1.11. [Important] Imagine a country with a low capital stock and poor access to productive technology. Use the Solow model to show what would happen if the country suddenly liberalized market restrictions that prevent information flows and thereby gained access to frontier technologies. For simplicity, assume that they can take advantage of all known technologies immediately.

1.12. [Important] Use the Solow model to give an explanation for the well-known negative relationship between national fertility rates and national incomes. This explanation is not the main reason for the relationship. What is a more likely explanation?

1.13. [Very important] The Solow model tells us about the sources of convergence between national incomes and about the sources of long-run growth. Why are sub-Saharan African incomes growing so much faster than Western European incomes (5% versus 2%)? Why are Western European incomes growing at all?
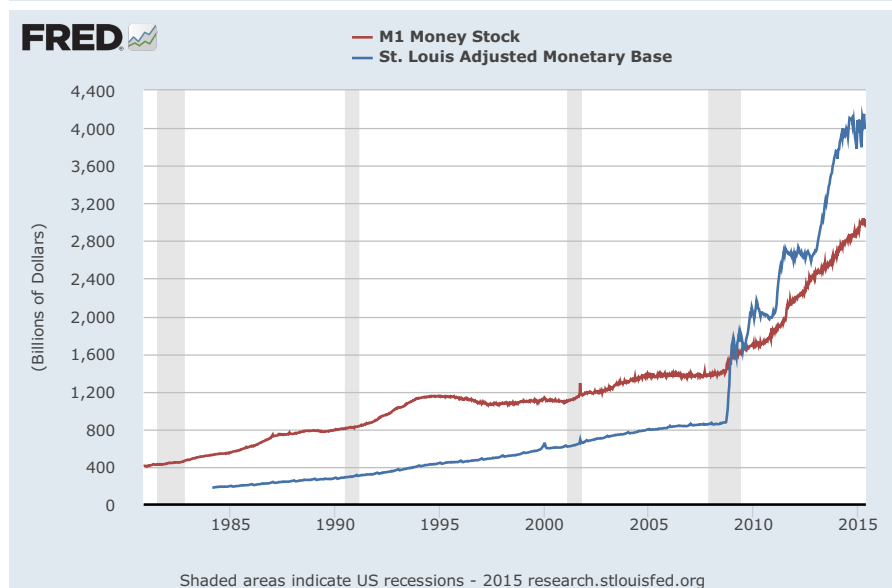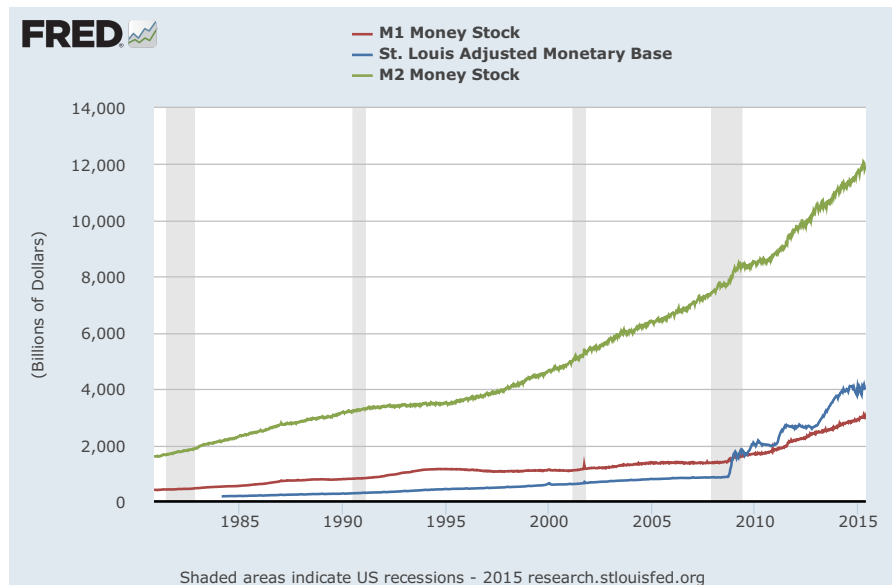
1.14. [Important for including in other answers, but I will not ask a question about this specifically] Know historical trends in incomes:

- Stagnation
- Divergence
- Convergence
- Regional differences

1.15. [Important] Do imports make us poorer?

1.16. [Less important] If we want to see if wages have been stagnating in the US in the last few decades, what measure of the price level should we use (e.g. CPI, GDP deflator, PPI)?

1.17. [Somewhat Important] Why is it hard to compare GDP figures between countries? How would you do it?

1.18. [Important] What fact about returns to scale drives the result that capital accumulation cannot produce long-run growth?

1.19. [Somewhat important] If you know that a growth model has constant returns to scale in augmentable factors, what does that tell you about long-run growth?

1.20. [Very important] Explain one way to get long-run growth

1.21. [Less important] What has happened to the share of income going to labor over time? Why does this value matter to us in our search for theories to explain the world?

1.22. [Somewhat important] How are wages of labor and capital determined?

1.23. [Very important] Show each of the two main points of the Solow-Swan model:

 (1.23.1) Conditional convergence
 (1.23.2) Long-run growth from technology, externalities, or human capital only

1.24. [Important] Are the Solow model predictions consistent with data?

1.25. [Important] Golden rule:

 (1.25.1) How do actual saving rates compare to the golden rule?
 (1.25.2) Why do we not go to the golden rule?

1.26. [Somewhat important] Why do we not want to maximize income growth?

1.27. [Important] Why might the Malthusian model fail to explain current events?

1.28. [Less important] Do natural resources improve growth outcomes?

1.29. [Important] What institutions induce growth?

1.30. [Less important] Are the tropics bad for business?

1.31. [Very important] Calculate inflation from prices indexes.

1.32. [Important] If it is easier for less developed nations to imitate established technology, then why do all countries' incomes not converge over time?

2 Money

2.1. [Very important] True or false: the central bank controls the money supply. Explain.

2.2. [Somewhat important] Why might pennies still be good to have even though it costs more than $.01 to make each of them?

2.3. [Very important] Why would avocados make poor money?

2.4. [Somewhat important] True or false: if we had only stock brokers but no banks, then the money base would exactly equal the money stock.

2.5. [Very important] True, false, or uncertain: if the Fed increased the required reserve ratio, then the money supply would fall.

2.6. [Less important] Why do bank runs occur?

2.7. [Somewhat important] During the great depression, the money supply fell by 28%. Why?

2.8. [Very important] Rank these assets in order of decreasing liquidity (write "more liquid" at the top and "less liquid at the bottom so there is no confusion)

 (2.8.1) Checking account balances

 (2.8.2) Certificate of deposit

 (2.8.3) A dollar coin

 (2.8.4) Saving account balances

2.9. [Important] If people hold 20% of the value of their demand deposits as cash and banks loan out 70% of demand deposits, then what is the money multiplier?

2.10. [Very important] Determine the impact on the money supply from the following scenarios. Determine which facts (rr, cr, etc.) facilitate the change and show the money stock change using our model of money multiplication. Does the money multiplier change?

(2.10.1) Debit card fees get lowered because of better technologies for processing the transactions

(2.10.2) Bankers become worried about potential bank runs

(2.10.3) The ECB buys more bonds

2.11. [Important] Which is bigger: M1 or M2? M1 or high-powered money?

2.12. [Very Important] Pick a year from the graphs below and report the M1 money multiplier and the M2 money multiplier:

3 Money topics that will be after first exam

3.1. Use the quantity theory of money to show that long-run inflation is due to changes in the money supply.

3.2. Explain the quantity theory of money.

3.3. What is the opportunity cost of holding money?

3.4. What is the opportunity cost of investment?

3.5. Suppose that we discover a new technology that increases the marginal product of capital.

    (3.5.1) Show using the investment market model how this will affect the real interest rate.

    (3.5.2) Show what this interest rate change looks like in the money market. How will this affect the velocity of money?

    (3.5.3) How will the technology affect income levels? What does your answer tell us about the shifts in investment demand and money demand?

3.6. Name *two* problems with predictable inflation and *one* problem with unexpected inflation.

3.7. Explain *two* reasons the central bank might want to keep inflation above 0%.

3.8. Why is inflation "good"?

3.9. True or false: inflation is bad because higher prices mean that our incomes and wages cannot buy as much. Explain.

3.10. True or false: shoeleather costs are now negligible because people no longer walk to the bank

3.11. Explain the idea of "menu costs"

3.12. True or false: when there is unexpectedly high inflation, it helps people with fixed rate loans. Explain.

3.13. True or false: if people can perfectly predict future price levels, then inflation will never cause prices to differ from their equilibrium levels.

3.14. Describe an event that will change the velocity of money and how it will do so.

3.15. If the long-run real GDP growth rate is 2% and the ten-year average inflation rate is 3%, how fast is the money supply growing?

3.16. If nominal GDP grew by 5% this year and inflation was 3%, what was real GDP growth?

3.17. If the real GDP growth rate is 7% in China and they grow the money stock at 10% per year, how much inflation will they get?

3.18. Use the liquidity theory of money demand to show how an increase in the supply of real money balances changes the real interest rate. Do you agree that your answer suggests that countries with higher inflation will typically have lower nominal interest rates?

3.19. True or false: bond prices and interest rates are positively correlated because they are both the prices of financial assets.

3.20. True or false: the FDIC lowers the cost to the Fed of acting as a lender of last resort

3.21. Explain what it means when the Wall Street Journal says, "Fed to raise rates".

3.22. True or false: the government can always print more money to get more revenue.

3.23. True or false: congressional and presidential oversight of the Fed is all that keeps them from printing all the money they want and producing runaway hyperinflation like in Zimbabwe or inter-war Germany.

3.24. True or false: In a country where the inflation rate is 10,000% per year, people will pay their taxes as early as possible so that they do not have to hold the money to pay their taxes later.

4 Business cycles and unemployment

4.1. This quote is from The Economist, 7 January, 2015:

> Prices in the euro zone are falling. Figures released on January 7th showed that consumer prices in the year to December fell by 0.2%, marking the return of deflation for the first time since 2009. Weak demand... and a lack of economic growth is dragging down prices.

Draw a graph illustrating the quote. Does the last sentence of the quote make sense when applied to the long run (i.e. does economic growth lower long-run inflation?)?

4.2. Do we expect countries with high inflation to have flatter or steeper aggregate supply curves? What does this tell us about the severity and duration of recessions in poorer places?

4.3. True or false: the US is still in a very high unemployment rate period

4.4. True or false: eliminating "at-will" layoffs will reduce unemployment, because people will lose their jobs less often

4.5. True or false: the US is in a recession

4.6. Suppose I tell you at the end of January that GDP fell by 2% that month. True or false: this is evidence of a recession.

4.7. True or false: the Volcker recession of the early 1980s was a mistake named for the Fed chair Paul Volcker, who failed to anticipate it and respond appropriately

4.8. Which components of GDP are most volatile? Why?

4.9. True or false: the unemployment rate is negatively correlated with the GDP growth rate

4.10. True or false: the classical dichotomy tells us that the Fed cannot impact GDP

4.11. Why are prices sticky in the short run?

4.12. Why does the AD curve slope down?

4.13. Why does the SRAS curve slope up?

4.14. How will an increase in the money supply shift curves in the AD-AS model? What will be the effect?

4.15. Suppose banks become more confident and decrease their reserve ratios. Show the effect on AD-AS.

4.16. Suppose that people lose confidence in banks and hide their money in their mattresses. Show the effect on AD-AS.

4.17. Show the effect on AD-AS of an oil price shock.

4.18. Use the model of aggregate demand and aggregate supply (where AD is determined by either of the simple forms $\frac{M}{P} = L(i, Y)$ or $\frac{M}{P} = kY$) to show what will happen in the short run and long run (including the transition from SR to LR) if the Federal reserve starts buying bonds.

4.19. Use the IS-LM model (a more sophisticated/complicated model of AD) to work through the following three scenarios:

(4.19.1) An increase in T

(4.19.2) A new tech that increases MPK

(4.19.3) An increase in P

Include starting and ending positions, transitions, and sizes of shifts. Use algebra where appropriate.

4.20. True or false: when the central bank increases the money supply, this causes people to buy more stuff because having more money makes them richer. This is why the Fed increases the growth rate of money during recessions.

4.21. True or false: monetary policy is better at responding to demand shocks than to supply shocks

4.22. How does the Fed increase interest rates?

4.23. True or false: we know that the Great Depression was severe as a result of poor monetary policy because the Fed decreased real money balances and increased interest rates during the depression.

4.24. True or false: governments do not like to use expansionary monetary policy during recessions because their deficits are so high during recessions and inflation will make it harder to pay their debts

4.25. True or false: a central bank can eliminate any aggregate demand shock if it has sufficient data and works fast enough

4.26. True or false: the central bank can reduce unemployment rates by printing money

4.27. Can a central bank keep the unemployment rate permanently above the natural rate?

4.28. Why do we sometimes say that "the Phillips Curve is clockwise"?

4.29. What is a reasonable guess at the "sacrifice ratio" in the US?

4.30. Why is the sacrifice ratio lower in more severe recessions?

4.31. True or false: the natural rate of unemployment is 0%

4.32. True or false: the liberal European Central Banks (ECB) respond more to stabilize employment and output in recessions than the conservative American Fed

4.33. Some economists argue that unemployment is persistent (called "hysteresis"). Why is this? If this is true, does it imply that we would want shorter and deeper or longer and more shallow recessions to get disinflation?

4.34. How can we get pain-free disinflation?

4.35. The Fed seems to respond about as strongly to a 1% decrease in incomes as it does to a 1% decrease in inflation

4.36. What is the goal of decreasing interest rates in a recession?

4.37. True or false: the Federal Funds rate is the rate the Fed charges on loans to banks

4.38. During recent years, the money base grew substantially, but prices barely grew (and in some quarters even shrunk). How can this happen? What does your answer tell you about why some people are worried about future inflation?

4.39. If the Fed announces a plan to raise the rate of money growth (or lower interest rates), what will this *announcement* do to the AD-AS system?

4.40. Explain how stabilization policy can be destabilizing

4.41. True or false: monetary policy has shorter inside lags than fiscal policy

4.42. (Might not get to this on Tuesday) Explain why a central bank might be better able to achieve their long-run inflation and unemployment goals by giving up their freedom to make decisions (discretion) and instead constrain their selves with a rule.

4.43. How does a binding inflation target rule help a central bank deal with (short-run) supply shocks?

4.44. Explain what it means when the Wall Street Journal says "Fed to raise rates".

4.45. Show (with AD-AS or Phillips curves) what will happen if a central bank tries to target stable employment at the natural rate but overestimates what the natural rate is.

4.46. True, false, or uncertain: the government spending multiplier is greater than unity (1).

4.47. Use the DAD-DAS framework to analyze the effect of a *temporary* fiscal "stimulus" spending package assuming that people's expectations about inflation are adaptive. Show what would happen in the short-run, after the tax cut disappears, and in the long-run. Graph time-series for output and inflation. How would your analysis change with rational expectations *about inflation*? (rational expectations are where people use all available information and thus expect what actually happens)

4.48. Why do most economists agree that monetary policy is a better response to business cycles than fiscal policy is?