

OMG MIDTERM 1 IS ON MONDAY

- **Materials.** Have UCD Scantron 2000(s) and pencil(s). No calculators. 60 minutes.
- **Homework.** Make sure you understand it.
- **Practice Problems.** There are problems that aren't found in the homework, so you will be tested on *comprehensive understanding* instead of just regurgitating homework problems. Therefore I *highly* recommend doing the practice problems at the end of each chapter as well.
- **Book and Lecture Notes.** You will still have to think in novel ways that aren't exactly reflected in either the homework or the practice problems. And you will need to be able to explain things that weren't directly asked in homework or practice problems.
- **Formulas.** Memorize them. Be able to use them.
- **Graphs.** Be able to read them.
- **Data.** Be familiar with them.
- **Know Everything.** Discussions are short and only once a week, so what I've covered is *not* an exhaustive list of things you'll need to know. In fact, I can promise you that there are things on the midterm that I haven't had time to mention at all.

Problem 1. Consider the following 2012 FRED Data:

Civilian Noninstitutional Population (Thousand persons)	237,829
Civilian Labor Force (Thousand persons)	153,885
Civilian Employment (Thousand persons)	139,077
Discouraged Workers – Men (Thousand persons)	731
Discouraged Workers – Women (Thousand persons)	709
Natural Rate of Unemployment (%)	5.20%

Find the labor force participation rate as a percentage.

Hint: the civilian noninstitutional population refers to people 16 years of age and older who are not inmates of institutions (penal, mental facilities, homes for the aged), and who are not on active duty in the Armed Forces. In other words, these are people who are able to perform civilian work, i.e. the civilian population.

Problem 2. Consider the following 2012 FRED Data:

Civilian Noninstitutional Population (Thousand persons)	237,829
Civilian Labor Force (Thousand persons)	153,885
Civilian Employment (Thousand persons)	139,077
Discouraged Workers – Men (Thousand persons)	731
Discouraged Workers – Women (Thousand persons)	709
Natural Rate of Unemployment (%)	5.20%

Find the overall unemployment rate in 2010 as a percentage.

Problem 3. Consider the following 2012 FRED Data:

Civilian Noninstitutional Population (Thousand persons)	237,829
Civilian Labor Force (Thousand persons)	153,885
Civilian Employment (Thousand persons)	139,077
Discouraged Workers – Men (Thousand persons)	731
Discouraged Workers – Women (Thousand persons)	709
Natural Rate of Unemployment (%)	5.20%

Find the cyclical rate of unemployment in 2012.

Problem 4. Consider the following 2012 FRED Data:

Civilian Noninstitutional Population (Thousand persons)	237,829
Civilian Labor Force (Thousand persons)	153,885
Civilian Employment (Thousand persons)	139,077
Discouraged Workers – Men (Thousand persons)	731
Discouraged Workers – Women (Thousand persons)	709
Natural Rate of Unemployment (%)	5.20%

The overall unemployment rate that you calculated above excluded discouraged workers. If you included the discouraged workers in your calculation, the “true” overall unemployment rate would equal what?

Problem 5. We have the following information about a small country:

Civilian Population = 300,000

Unemployment Rate = 15.00%

Labor Force Participation Rate = 60%.

Calculate the following:

- (a) The size of the labor force
- (b) the number of unemployed people
- (c) The number of employed people
- (d) The employment-population ratio.

Problem 6. In the previous question the government officials of the country conveniently forgot to include the discouraged workers in their calculations. After some research you find out that there were a total of 11,250 discouraged workers in the country. Therefore, you conclude that the “true” unemployment rate was what percent?

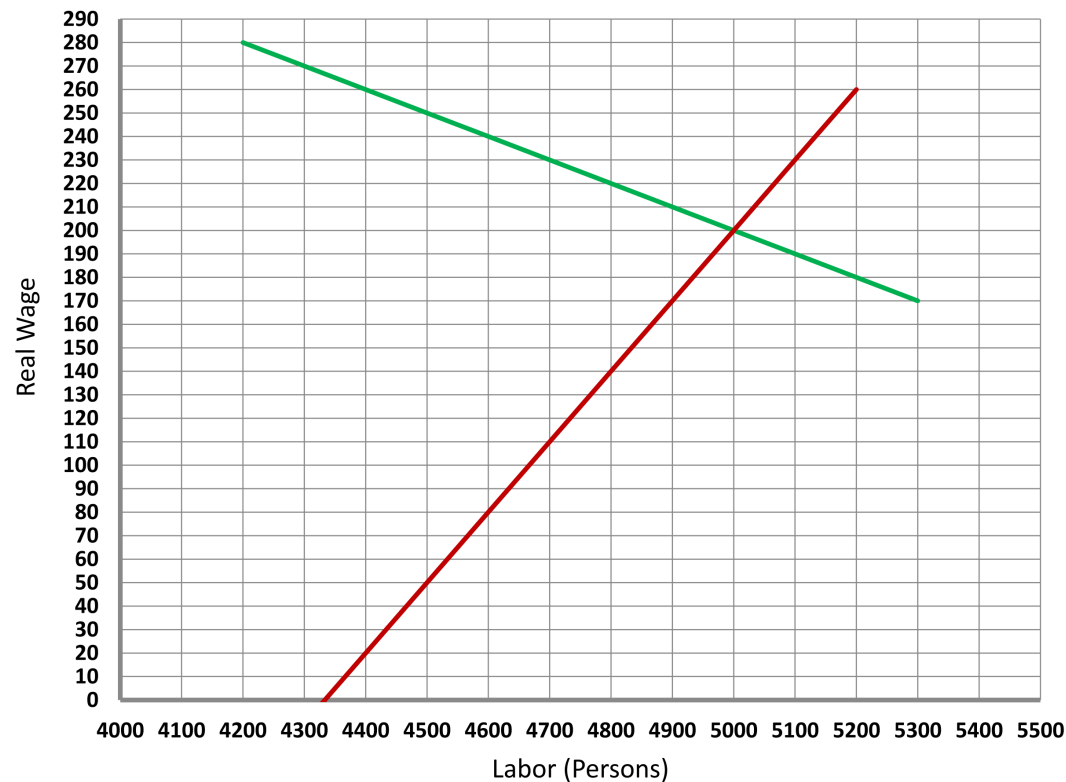
Problem 7. Indicate which of the following result in an increase in natural unemployment.

- (a) Due to globalization, some Sacramento factories relocate to Indonesia.
- (b) Automation results in many workers in auto industry losing their jobs.
- (c) Many new college graduates enter the job market.
- (d) American households begin to worry about their jobs and reduce their spending on goods and services. This causes a severe recession.

Note: **natural unemployment** is not related to the level of real GDP. It is only natural to have this kind of unemployment in a growing free market capitalist system. We can have natural unemployment even if real GDP equals or exceeds potential. Reasons for natural unemployment include:

- **frictional unemployment.** It takes a few weeks to a few months to find a job.
- **structural unemployment.** The structure of industries change. Some jobs might be outsourced. Think *skills mismatch*.
- **excessive real wages.** “In this book we will by and large ignore the minimum-wage and efficiency-wage explanations of natural unemployment.” Make of that what you will.

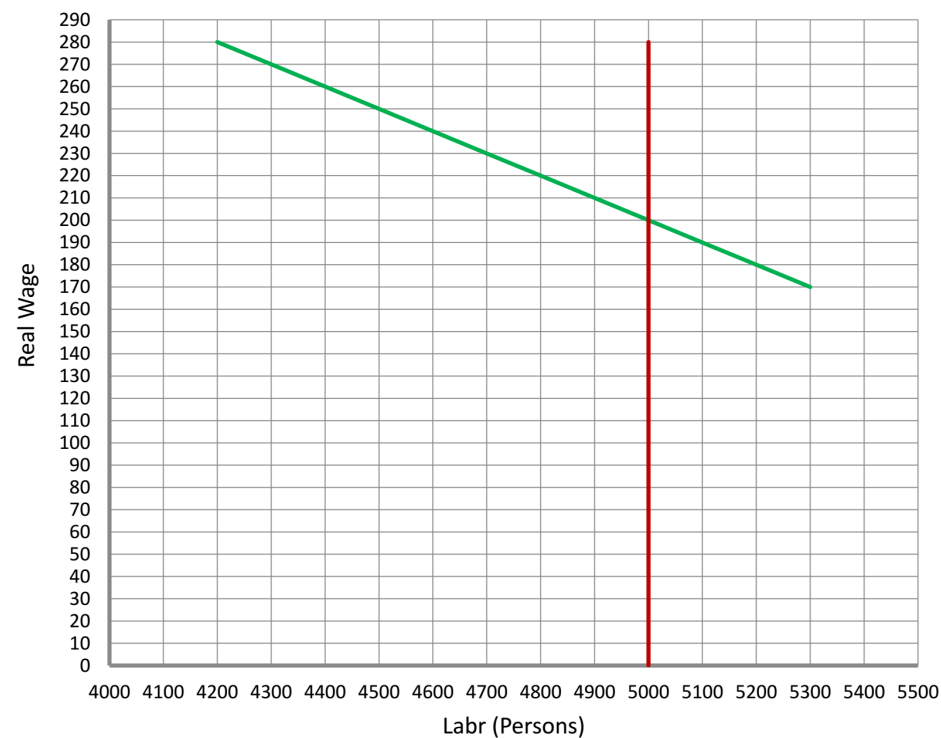
You can write $u_n = u_f + u_s$ if you'd like.

Problem 8.

In the long run, wages and prices are fully flexible. In the short run, they are sticky or rigid. The natural rate of unemployment is 6 percent.

- (a) Find the initial overall unemployment rate.
- (b) Now suppose that the stock market crashes and many households experience reductions in the values of their financial wealth. As a result, they reduce their demands for goods and services. Because of this, demand for labor decreases by 400 workers. If the real wage gets stuck at the current level, the overall unemployment rate will be what?

Problem 9. The following graph shows the short-run labor market conditions in a country. The supply of labor is vertical. In other words, the amount of labor supplied is not sensitive to changes in the real wage. This can happen, as you know, if the substitution effect of a change in the real wage equals the income effect, so that neither effect is dominant. The natural rate of unemployment is 5 percent.



If demand for labor increases by 100 workers and the real wage stays at the current level, the overall unemployment rate will equal what percent?

Problem 10. Consider the labor-market graph in Question 9. In the class we assumed that when demand for labor is reduced in the short run, the real wage stays the same. This was just to simplify our analysis. In the real world the real wage is slightly pro-cyclical. What this means is that the real wage moves somewhat with the real GDP. In a recession, it goes down. In an expansion, it goes up.

Suppose that demand for labor decreases by 600 workers due to a recession. If the real wage stays at the current level, then

- (a) How many people will be naturally unemployed?
- (b) How many people will be cyclically unemployed?
- (c) What is the overall unemployment rate will be?

Suppose again that demand for labor decreases by 600 workers due to a recession, but this time the real wage decreases to 170 units.

- (i) How many people will be naturally unemployed?
- (ii) How many people will be cyclically unemployed?
- (iii) What is the overall unemployment rate will be?

Practice Problems

Problem 11. In a country, the overall rate of unemployment is 11% and the natural rate of unemployment is 5%. Assume that the Okun's coefficient is $\alpha = 2$. Find the percentage GDP gap in this country.

Recall that **Okun's Law** says

$$\frac{Y_p - Y}{Y_p} = \alpha \times u_c,$$

where Y_p is potential GDP, Y is actual GDP, u_c is cyclical unemployment, and α is **Okun's coefficient**. The **GDP gap** is the difference between actual and potential GDP, and the percentage GDP gap is the LHS

$$\frac{Y_p - Y}{Y_p}.$$

Problem 12. Match these things,

- (a) Observation the each additional worker increases output by a smaller amount than did the previous worker.
- (b) The component of a change in the quantity of labor supplied as a result of a change in the real wage that is due to the change in the opportunity cost of leisure.
- (c) The nominal benefit from hiring another unit of labor.
- (d) The total number of all the filled and vacant jobs available in an economy is the same as:
- (e) The component of a change in the quantity of labor supplied as a result of a change in the real wage that is due to the change in the workers' incomes.

with these things,

- (i) marginal product of labor
- (ii) value of marginal product
- (iii) demand for labor
- (iv) supply of labor
- (v) income effect
- (vi) substitution effect
- (vii) law of diminishing returns