

This review sheet is intended to cover everything that could be on the exam; however, it is possible that I will have accidentally left something off. You are still responsible for everything in the chapters covered except anything that I explicitly say you are not responsible for. Therefore, if I left something off of this sheet, it can still be on the exam. There will be no multiple-choice questions. Most of the questions will be like the ones in the homework assignments, and possibly a few definition questions, but I am more likely to ask questions that make you use the definitions rather than recite them.

The review session will probably be Tuesday 9/19, at a time to be determined, in the normal room

You will be given a pair of equations and asked to explain one of them. The equations at the end of the chapters will help you prepare for this part of the exam. Note that last semester this had one fewer classes before the exam. So, some of the topics for this test were on Exam #2 in the past.

Chapter 1: What are **macroeconomics**, **business cycles**, **recession**, **boom**, **unemployment**, **inflation**, **trade surplus**, and **trade deficit**? Why do we **aggregate** and what problems does it cause? How do the **Keynesian** and **Classical** economists differ?

Chapter 2: Know what is in **GDP** and why the three ways of calculating it should give the same result. What is included and what is excluded? What are some reasons why using GDP to measure well-being is not accurate? Understand how **GNP** differs from GDP. Know $GDP + NFP = GNP$, $GNP - DEP = NNP$, $NNP - \text{Indirect Bus. Tax} + \text{Bus. Subsidy} = NI$, $NI - \text{Bus. Tax} - \text{Ret. Earnings} + TR = PI$, $PI - T = DPI$. In general, if you know what each of them measures, you can figure out what to include and what to exclude. Also, your book does not include everything used in the calculations. In particular, understand why depreciation, NFP, TR, INT, and T matter to the calculations. Understand what determines **private**, **government**, and **national saving**. Why should $S = I + CA$? What are **stocks** and **flows**? Which is saving and which is **wealth**? How do we calculate **real GDP**, the **GDP deflator**, and **inflation**? Why did I say that $r = (i - \pi^e)/(1 + \pi^e)$ rather than the book's equation?

Chapter 3: What do the two **production functions** look like and why? What moves them? Unless I tell you otherwise, draw the production function with N on the horizontal axis. What is a **supply shock**? What determines the **demand for labor**? What moves it? What is the **income-leisure trade off**? What are the **income and substitution effects** and how do they relate to the **supply of labor**? What moves the labor supply curve? What is the **full-employment** level of employment, \bar{N} , and why is it not an unemployment rate of 0%? Note that we will refer to full-employment level of unemployment as the **natural rate of unemployment** even though they are technically slightly different. Disregard skilled and unskilled labor. Draw just the combined supply and demand of labor. How is **unemployment rate** measured? Who is classified as unemployed and who is not in the **labor force**? Why might the unemployment numbers be misleading? What are **frictional**, **structural**, **cyclical**, and **seasonal unemployment**? What are the two forms of **Okun's Law**? The equation in the book only works on an annual basis if the full-employment level of GDP grows at 3%. From World War II until 1975, it grew at 2.5% and then grew at 2% until 1996, and then went back to 2.5%. (I believe that it probably has gone back down to 2%.) Therefore, the equation is inaccurate, but shows how real GDP can grow and still have unemployment grow, as in 1991 - 1992.

Chapter 4's appendix (Only Pages 159 - 162 and 166 - 175 excluding the indifference curves): What is the **inter-temporal budget constraint**? How does a change in r cause a strange movement of it? Why does that mean that r may have an uncertain effect upon current consumption? Ignore the indifference curves. What is the **Permanent Income Hypothesis** and the **Life-Cycle Model**? I added the equation $c = b_T y_T + b_P y_P$. Their conclusions are virtually the same, but they are different. How do they affect our model of consumption? How do they relate to **Ricardian Equivalence**? What effects do durable goods and borrowing constraints have on the models? You can either put a f on the future income and consumption or you can put $_0$ on the current values and $_1$ on the future values. The former is how the book does it, and the latter is how I did it in class.

Chapter 4: What determines desired saving and desired consumption? What is the **MPC** and why is it important? How do current income, expected future income, wealth, and r affect consumption? What is $r_{a,t}$ and why does it matter? How do government spending and taxes affect national saving? Why might they not affect it? What determines uc_K ? What will move that curve? Why is where it crosses MPK^f the desired level of K ? Why is there an "f" on the MPK ? What moves the MPK^f line? How does K^* relate to I ? Why might a change in the **depreciation rate** have uncertain effects upon investment? What moves the **S^d and I^d** lines on the graph? Why should they yield the equilibrium level of S and I ?

This is the non-graded Assignment #3A that will be gone over with Assignment #3.

1) (20 points) Draw the S/I diagram. Illustrate the effects of a tax cut assuming Ricardian Equivalence does not hold. Explain why the curve(s) moved as drawn. What happens to the interest rate and the levels of saving and investment?

2) (40 points) Use the MPK^f/uc_K diagram and the S/I diagram to illustrate the effects of the increase in the corporate tax rate discussed in Point 1 of the article below. Explain why the curves moved as drawn and how they show that: Investment will be down, long-run GDP growth will be down .98%, long-run GNP growth will be down by 1.01%, and capital stock will be down .68%. Note that section of the article also predicts wages will shrink .68% and jobs will be down 303,000. Other graphs could be used to show those predictions.

<https://taxfoundation.org/build-back-better-revenue-joint-economic-committee-tax/>

3) (20 points) Explain $r_{a,t} = \frac{(1-t)i - \pi^e}{1 + \pi^e}$. Make sure you explain why π^e is there twice.

4) (20 points) Draw the MPK^f/uc_K diagram. Illustrate the effects of an increase in the depreciation rate. Explain why the curve moves as drawn. What happens to the user costs, desired amount of capital and the amount of investment? Explain how you determined the change in investment.