

## Midterm Review Sheet - ECN 101 Intermediate Macroeconomic Theory

Professor Geromichalos, Winter 2012

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### Chapter 2: All about GDP

- Expenditure = Income = Production. These approaches should lead to the same calculated GDP
- Know HOW to calculate GDP using these various approaches. Also know what belongs in GDP and what does not. E.g. A friend buys a used car for \$5000. GDP does not change because GDP measures the total values of goods and services produced in a given time frame. The car is used and thus was produced in a prior time frame.
- Nominal GDP = inflation x Real GDP
- Comparison of GDP across countries. E.g. if comparing India's GDP to U.S. GDP
  - 1.) convert Nominal GDP of India into \$ by multiplying by the exchange rate
  - 2.) convert Nominal GDP of India in \$ to Real GDP by multiplying by relative prices

### Chapter 3: Growth Rates Mania!

- Know what a growth rate is! I.e. it is a *rate* (a number between 0 and 1)
- Know how to use and apply the following formulas:
- $\frac{y_{t+1} - y_t}{y_t} = g(y)$
- $y_t = (1 + g(y))^t \times y_0$
- $z = xy$  then  $g(z) = g(x) + g(y)$
- $z = x/y$  then  $g(z) = g(x) - g(y)$
- $z = x^a$  then  $g(z) = a \times g(x)$
- RATIO SCALE GRAPHS!!!!

### Chapter 4: The Production Model

- You should be able to recite this in your sleep:
  - Endogenous Variables (what variables are you solving for?)
  - Parameters (what constants are you given?)
  - Equations needed to find equilibrium:
    - \* Production function
    - \* Wage setting rule (from Profit Maximization)
    - \* Rental rate setting rule (from Profit Maximization)
    - \* Demand = Supply of Inputs (that is capital and labor)
  - Know how to solve for equilibrium vales
  - Comparative statics: What happens when one parameter changes and everything else remains the same? If a variable changes, what else needs to change to maintain equilibrium?
- What are the key outcomes of the model? (e.g. Size of labor force and equilibrium wage are inversely related)

### Chapter 5: The Solow Model

- You should be able to recite this in your sleep:
- Endogenous Variables (what variables are you solving for?)
  - Parameters (what constants are you given?)
  - Equations needed to find equilibrium:
    - \* Production function
    - \* What do people do with output? (consume or invest)
    - \* Savings is a constant fraction (s) of output. Consumption is then (1-s) of output

- \* How do you describe the change capital over time? (Depreciation and Investment are key)
- \* Fixed Labor force. Initial capital stock given.
- Know how to solve for equilibrium values, both analytically AND graphically
- Comparative statics: Know how to do these graphically and analytically!
- What are the key results of this model? (e.g. no growth in the long run since you reach a steady state)
- When graphing please remember to LABEL ALL AXES, LINES, CURVES, EQUILIBRIUM POINTS
- AND remember to try to provide a written explanation of your graph. Try not to assume that we “know what you’re talking about”.

## Chapter 6: The Romer Model

- You should be able to recite this in your sleep:
- Endogenous Variables (what variables are you solving for?)
  - Parameters (what constants are you given?)
  - Equations needed to find equilibrium:
    - \* Production function
    - \* How is labor allocated to production of goods vs. production of ideas
    - \* How does “ideas” or “knowledge” ( $A_t$ ) change over time
    - \* A constant fraction of labor is devoted to production of goods and the same is true for ideas. This fraction is time invariant!
    - \* Fixed capital stock
    - \* Fixed Labor force. Initial capital stock given.
  - Know how to solve for equilibrium values
  - Comparative statics: again know what happens if little  $l$  changes, or other parameters change.
  - What are the key results of this model? (e.g. long run growth of output is possible and it is equal to the growth rate of ideas)

### Final comments:

- Bring a scantron (the professor will provide more details on this to come)
- Bring a calculator!!!!!!!!!!!!!!!!!!!!!!!!!!!!
- Bring a pencil!!!!!!!!!!!!!!
- Relax you’ll do just fine