ECON 10020/20020
Principles of Macroeconomics

Final Exam
Study Guide

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Name (print neatly and clearly):

General Instructions

1. Read and follow all instructions/directions carefully.
2. Make sure your exam consists of 8 pages, not including the cover page.
3. An inability to follow instructions/directions will result in points being deducted.
4. The only device allowed is a simple calculator; i.e., anything that can store or retrieve information (including a graphing calculator) is NOT allowed.
5. Use of books, notes, another person, and/or aid of any kind is absolutely NOT allowed.
6. Answer all questions in blue or black ink only; i.e., no pencils or colored inks. The only exception: graphs may be drawn in pencil. Note: use a guide of some sort (e.g., a ruler) for all graphs.
7. Do not use white out or similar products, but neatly cross/scratch out anything you do not want graded.
8. Write, mark, and draw your answers neatly and clearly. If your answer is illegible (i.e., difficult to read in the least), then it will not be graded. It is your job to clearly communicate.
9. Label all graphs fully and completely; i.e., axes, intersections, curves, etc.
10. Support your answers as thoroughly as possible; i.e., graphically, conceptually, and mathematically. Note: this may not be feasible for all questions asked. State and define any concept utilized and list and name any equation used. In other words, show all of your work.
11. For the True/False/Uncertain questions clearly indicate your choice by writing either “True”, “False”, or “Uncertain” underneath the respective question.
12. Unless explicitly instructed otherwise, all questions require a justification to receive credit.
13. Do not use white out or similar products, but neatly cross/scratch out anything you do not want graded.
14. Assume the nominal wage is fixed in the short-run, all markets begin in long-run equilibrium, and capital stock is fixed in both the short-run and long-run except for negative shocks. For changes in the variables of interest, reference the initial level, unless instructed otherwise, in both the short-run and long-run.

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The following study guide is intended to aid you in your studying. The outline includes, to the best of
my ability, every topic represented on the final exam; both explicitly and implicitly. For example, drawing
a downward sloping aggregate demand curve is expected on the exam for an AS-AD question; knowing why
the curve slopes downward isn’t directly asked/required, but may be helpful. Although detailed in places, the
study guide is meant to complement your efforts throughout the semester, not as a substitute.

As announced in class, there will be a special final exam review on Thursday 30 April from 1:00 p.m. to 2:30
p.m. in 129 DeBartolo Hall. The format will be similar to the in class review sessions. Please ask questions.
Note: I have no intention of answering last minute emails. If need be, I can stay later and help answer additional
questions.

## Final Exam Study Guide

1. Loanable Funds Model

   (a) desired saving curve; supply of loanable funds ($S^d$)
      - national (aggregate) saving
        i. private saving – households
        ii. public saving – government
      - Determinants
        i. income ($Y$)
        ii. consumption ($C$)
          A. expected future income
          B. wealth
        iii. government expenditure ($G$)
        iv. saving rate ($s$)
        v. real interest rate ($r$)
          - slope
          * The desired saving curve ($S^d$) slopes upward because at higher interest rates households
            will be induced to save more (and spend less) out of any given amount of income.

   (b) desired investment curve; demand of loanable funds ($I^d$)
      - aggregate investment
        i. firms
      - Determinants
        i. expected future (business) profits
        ii. business taxes/regulations/subsidies
        iii. real interest rate ($r$)
          - slope
          * The curve representing the demand for loanable funds by business firms slopes down-
            ward because at higher interest rates investment projects become less profitable, less
            investment is undertaken, and there is a smaller demand for loanable funds to finance
            investment projects.

2. Fisher Equation

   (a) *ex ante*
      - $i = r^e + \pi^e$

   (b) *ex post*
      - $i = r + \pi$
(c) real interest rate vs. nominal interest rate

(d) inflation vs. deflation

3. Aggregate Supply – Aggregate Demand Model
   (a) long-run aggregate supply (LRAS)
   - Determinants
     i. technology (A)
     ii. capital (K)
     iii. labor (L)
     iv. price level (P)
     - slope
     * Note: A, K, and L are not affected by the price level; i.e., the LRAS curve is vertical.

   (b) short-run aggregate supply (AS)
   - Determinants
     i. same shifters as LRAS: A, K, and L
     ii. input prices
        - examples:
          A. price of oil
          B. nominal wage (W)
     iii. price level (P)
        - slope
        A. contracts make some wages and prices “sticky”
        B. firms are often slow to adjust wages
        C. menu costs make some prices sticky

   (c) aggregate demand (AD)
   - Determinants
     i. consumption (C)
        A. disposable income
        B. wealth
        C. expected future income
     ii. investment (I)
        A. expected future profits
        B. business taxes/subsidies/regulations
     iii. government expenditure (G)
        - fiscal policy
     iv. net exports (NX) [NX = EX – IM]
        A. exports (EX)
           - exchange rate
           - foreign income
           - foreign trade barriers
        B. imports (IM)
           - exchange rate
           - domestic trade barriers
     v. money (M)
        - monetary policy
     vi. price level (P)
        - slope
        A. wealth effect
        B. interest-rate effect
        C. international-trade effect

(d) short-run vs. long-run

(e) business cycle
- recession
- expansion

(f) Self-Correcting Mechanism vs. Monetary Policy vs. Fiscal Policy

4. Solow Growth Model

(a) output (real GDP) per capita \( y \)

(b) capital–labor ratio \( k \)

(c) per capita production function

\[
y = Af(k)
\]

(d) depreciation/dilution line

\[
(n + d)k
\]

(e) saving rate times per capita production curve (investment per capita)

\[
sy = sAf(k)
\]

(f) Determinants

i. technology \( A \)

ii. saving rate \( s \)

\[ 0 < s < 1 \]

iii. depreciation \( d \)

\[ d > 0 \]

iv. population growth rate; dilution \( n \)

\[ n > 0 \]

5. Exchange Rate

(a) appreciate vs. depreciation

(b) fixed vs. floating

(c) Determinants

i. change in relative incomes

ii. change in tastes/preferences

iii. change in relative prices

iv. change in relative real interest rates

v. changes in relative expected returns on stocks, real estate, or production facilities

vi. speculation

6. Money and Banking

- definition of money

- functions of money

(a) medium of exchange

(b) unit of account

(c) store of value

- actual (total) reserves

(a) required reserves

(b) excess reserves

- how banks create money

(a) loans

(b) money multiplier

(c) Financial Crisis

- relationship between money and interest rates

- basis points

- bank runs/panics

- FDIC
7. Central Banks and Monetary Policy

(a) Fed structure
   i. Chair
   ii. FOMC

(b) Relative Effectiveness: Open vs. Closed

(c) Expansionary vs. Contractionary

(d) monetary policy tools
   • Open Market Operations (OMO)
   • discount policy
     i. discount rate
   • reserve requirements

(e) monetary policy goals
   i. price stability
   ii. relatively high employment
   iii. stability of financial markets and institutions
   iv. (long-run) economic growth

(f) monetary policy targets
   i. money supply
   ii. interest rates
     A. Fed Funds rate

(g) complications
   i. lags
   ii. cyclical asymmetry
   iii. Financial Crisis
     • quantitative easing
     • liquidity trap

(h) independence

8. Logical Fallacies

(a) Loaded Terminology

(b) Counterfactual (ignoring or pretending it is known)

(c) *Post Hoc*

(d) Correlation versus Causation

(e) Straw Man

9. Analytic

(a) Percent Change versus Percentage Point

(b) Rule of 70 (72)

(c) Growth Rate

10. General Economics

(a) Incentives

(b) Opportunity Cost

(c) Positive versus Normative

(d) Secondary Effects

(e) *Ceteris Paribus*

(f) Diminishing Returns

(g) Marginal Analysis

11. Fiscal Policy
(a) government expenditure
(b) taxation
(c) Relative Effectiveness: Open vs. Closed
(d) Multipliers
   • Fiscal
   • Tax
   • Balanced Budget
(e) complications
   i. lags
   ii. political business/budget cycle
(f) current debates
   i. social security
   ii. medicare

12. Macroeconomic Foundations
   (a) GDP
      i. Definition
      ii. GNP
      iii. Nominal versus Real
      iv. Natural Rate (Potential)
   (b) Inflation
   (c) Unemployment
      i. Definitions & Formulas – no calculation
      ii. Classification
      iii. Criticisms
   (d) price level
      i. Consumer Price Index (CPI) vs. GDP deflator
   (e) interest rates
   (f) exchange rates

13. International
   (a) Trilemma
      i. free capital flows
      ii. independent monetary policy
      iii. fixed exchange rate