



Department of Economics Course Outline

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| | | Term: | Fall 2006 |
| Course: | Economics 659 [Macroeconomic Theory I] | Section: | 01 |
| Time: | MW 09:00 ? 10:15 | Place: | SS 423 (subject to change) |
| Instructor: | Francisco M. Gonzalez | | |
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Textbook(s):

Romer, David (1996): *Advanced Macroeconomics*, second edition (2001), McGraw-Hill.

Book(s) on Reserve:

Helpman, Elhanan, *The Mystery of Economic Growth*, 2005, Harvard University Press.

Easterly, William, *The Elusive Quest for Growth*, 2001, MIT Press.

Aghion, Phillipe and Steven Durlauf (eds). *Handbook of Economic Growth*, Vol. 1A, Amsterdam: North Holland.

Course Outline:

This course is an introduction to the analysis of the problems of macroeconomics. It is the first one of the two courses in the graduate core macroeconomics sequence offered by the Economics Department at the University of Calgary. This course has three objectives: (1) to develop the basic tools that are used in the analysis of dynamic problems in economics; (2) to understand the structure of dynamic general equilibrium models and why these models are useful in macroeconomics; and (3) to apply these tools to the analysis of the central problems of economic growth.

There is a list of readings for this course. For each topic, I have listed a couple of reference books and/or references to

leading papers in the field. Information about required readings will be provided in class.

General References

Romer, David (1996): *Advanced Macroeconomics*, second edition (2001), McGraw-Hill.

Barro, Robert J. and Xavier Sala-i-Martin (1995): *Economic Growth*, McGraw-Hill.

Stokey, Nancy L. and Robert E. Lucas Jr. (1989): *Recursive Methods in Economic Dynamics*, Harvard University Press.

I. Dynamic Optimization: Discrete Time

This part considers dynamic optimization problems in discrete time. We will model and solve typical dynamic economic problems using the tools of dynamic programming. We will use these tools to develop the permanent income hypothesis, the Ricardian equivalence and the Lucas critique, and to understand the role of adjustment costs in investment problems.

A. Theory: Discrete Dynamic Programming

Sargent, Thomas J. (1987): *Dynamic Macroeconomic Theory*, Harvard University Press (chapter 1).

Stokey & Lucas (1989, chapters 3, 4 and 5).

B. ~~Applications~~ and Saving

Romer (1996, chapter 7).

Hall, Robert E. (1978): "Stochastic Implications of the Life Cycle Permanent Income Hypothesis: Theory and Evidence", *Journal of Political Economy* 86, 971-987.

2. Investment

Romer (1996, chapter 8).

3. Lucas's Critique

Lucas, Robert E. (1976): "Econometric Policy Evaluation: A Critique", *Carnegie-Rochester Conference Series on Public Policy* 1, 19-46.

II. Dynamic Optimization: Continuous Time

This part considers optimal control problems in continuous time. We will focus on the modeling and solving of typical dynamic economic problems using the maximum principle. In this context we will analyze the one-sector model of optimal growth and the Neoclassical theory of investment.

A. Theory: The Maximum Principle

Arrow, Kenneth J. and Mordecai Kurz (1970): *Public Investment, the Rate of Return, and Optimal Fiscal Policy*, The

Johns Hopkins Press (chapter 2).

B. Applications: Investment

Hayashi, Fumio (1982): "Tobin's Marginal and Average q : A Neoclassical Interpretation", *Econometrica* 50, 213--224.

III. Dynamical Systems

This is an introduction to the analysis of difference and differential equations, including the solution of the simplest linear dynamic systems, the linearization of non-linear systems and the use of phase diagrams.

Azariadis, Costas (1993): *Intertemporal Macroeconomics*, Blackwell (chapters 2, 4 and 6).

Luenberger, David G. (1979): *Dynamic Systems*, John Wiley & Sons (chapters 2 and 9).

IV. Dynamic General Equilibrium Analysis

A. Introduction: Walrasian Models

We begin this part with an introduction to dynamic general equilibrium models. We will focus on equilibrium market clearing models without search frictions. The main objective is to understand the idea of general equilibrium in the context of the simplest economic models of a society.

Bliss, Christopher (1975): *Capital Theory and the Distribution of Income*, (chapter 3).

Mas-Colell, Andreu, Michael D. Whinston and Jerry R. Green (1995): *Microeconomic Theory*, Oxford University Press, (chapters 19 and 20).

Stokey & Lucas (1989, chapters 2 and 15).

B. The Ramsey Growth Model

The goal is to understand the structure of the Neoclassical growth model, which is the basic workhorse model in macroeconomics.

Romer (1996, chapters 1 and 2).

Barro & Sala-i-Martin (1995, chapters 1 and 2).

C. Overlapping Generations Models

We will model and analyze the problems of exchange and production in the simplest dynamic general equilibrium framework, that is, one with an overlapping generations demographic structure. We will focus on the notion of dynamic inefficiency. In this context we will consider the role of social security in capital accumulation.

Romer (1996, chapter 2).

Shell, Karl (1971): "Notes on the Economics of Infinity", *Journal of Political Economy* 79, 1002-1011.

Gale, David (1973): "Pure Exchange Equilibrium of Dynamic Economic Models", *Journal of Economic Theory* 5, 12-36.

Diamond, Peter A. (1965): "National Debt in a Neoclassical Growth Model", *American Economic Review* 55, 1126-1150.

Barro, Robert J. (1974): "Are Government Bonds Net Wealth?", *Journal of Political Economy* 82, 1095-1117.

Samuelson, Paul A. (1975): "Optimum Social Security in a Life-Cycle Growth Model", *International Economic Review*

D. Models of Endogenous Growth

We will develop the modern theory of economic growth. In turn we will look at (1) the AK model, (2) models of growth with externalities and perfect competition, (3) models of endogenous technological progress, and (4) models with multiple equilibria.

Romer (1996, chapter 3).

Barro & Sala-i-Martin (1995, chapters 4, 5, 6 and 7).

Rebelo, Sergio (1991): "Long-Run Policy Analysis and Long-Run Growth", *Journal of Political Economy* 99, 500-521.

Romer, Paul M. (1986): "Increasing Returns and Long-Run Growth", *Journal of Political Economy* 94, 1002-1037.

Lucas, Robert E. (1988): "On the Mechanics of Economic Development", *Journal of Monetary Economics* 22, 3-42.

Romer, Paul M. (1987): "Growth Based on Increasing Returns Due to Specialization", *American Economic Review, Papers and Proceedings* (May), 56-62.

Romer, Paul M. (1990): "Endogenous Technological Change", *Journal of Political Economy* 98, 71-102.

Grossman, Gene M. and Elhanan Helpman (1991): "Quality Ladders and Product Cycles", *Quarterly Journal of Economics* 106, 557-586.

Aghion, Philippe and Peter Howitt (1992): "A Model of Growth Through Creative Destruction", *Econometrica* 60, 323-351.

Murphy, Kevin J., Andrei Shleifer and Robert W. Vishny (1989): "Industrialization and the Big Push", *Journal of Political Economy* 97, 1003-1026.

Galor, Oded and Joseph Zeira (1993): "Income Distribution and Macroeconomics", *Review of Economic Studies* 60, 35-52.

E. Growth Theory v. Growth Empirics v. Growth Policy

We will consider some of the evidence concerning cross-country differences in income per capita, and economic growth at the level of the world. The focus is on the importance of economic theory both for growth empirics and for practical growth policy.

Preliminaries

Mankiw, N. Gregory, David Romer and David N. Weil (1992): "A Contribution to the Empirics of Economic Growth", *Quarterly Journal of Economics* 107, 407-437.

Hall, Robert and Charles I. Jones (1999): "Why Do Some Countries Produce So Much More Output Per Worker Than Others?", *Quarterly Journal of Economics* (February), 83-116.

Chari, V.V., Patrick Kehoe and Ellen McGrattan (1997): "The Poverty of Nations: A Quantitative Investigation", Working Paper, Federal Reserve Bank of Minneapolis.

Kremer, Michael (1993): "Population Growth and Technological Change: One Million B.C. to 1990", *Quarterly Journal of Economics* (August), 681-716.

Jones, Charles I. (1995): "R&D Based Models of Economic Growth", *Journal of Political Economy* 103, 759-784.

Putting Things Together ? and Raising Further Questions

Almost surely we will not be able to get here before the end of the semester. I include the following list of "bed-time"

of the course. All assignments, especially the papers of graduate work (team paper, essay, etc.) should be submitted on time. I suggest that you read it over the holidays.

Helpman, Elhanan (2005): *The Mystery of Economic Growth*, Harvard University Press.

Easterly, William (2001): *The Elusive Quest for Growth*, MIT Press.

Mankiw, N. Gregory (1995): "The Growth of Nations", *Brookings Papers on Economic Activity* 1, 275-326.

Pritchett, Lant (1997): "Divergence, Big Time", *Journal of Economic Perspectives* 11, 3-18.

Jones, Charles I. (1997): "On the Evolution of the World Income Distribution", *Journal of Economic Perspectives* 11, 19-36.

Olson, Mancur (1996): "Big Bills Left on the Sidewalk: Why Some Nations are Rich, and Others Poor", *Journal of Economic Perspectives* (Spring), 3-24.

Grade Determination and Final Examination Details:

Student performance will be evaluated through a collection of problem sets worth 10 %, a presentation worth 15 %, and three exams worth 25 % each.

Tests and final exams are marked on a numerical (percentage) basis, then converted to letter grades. The course grade is then calculated using the weights indicated above. As a guide to determining standing, these letter grade equivalences will generally apply:

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|----|----------|----|---------|----|---------|
| A+ | 90 ? 100 | B | 70 ? 74 | C- | 50 ? 54 |
| A | 85 ? 89 | B- | 65 ? 69 | D+ | 45 ? 49 |
| A- | 80 ? 84 | C+ | 60 ? 64 | D | 40 ? 44 |
| B+ | 75 ? 79 | C | 55 ? 59 | F | 0 - 39 |

If, for some reason, the distribution of grades determined using the aforementioned conversion chart appears to be abnormal the instructor reserves the right to change the grade conversion chart if the instructor, *at the instructor's discretion*, feels it is necessary to more fairly represent student achievement.

A passing grade on any particular component of the course is not required for a student to pass the course as a whole.

Non-programmable calculators will not be allowed during the writing of tests or final examinations.

Tests and exams will not involve multiple choice questions.

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