VASSAR COLLEGE
Department of Economics

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Office Hours:
Monday 3-5pm
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Economics 304
Advanced Topics in Macroeconomics

The goal of this course is for you to bridge a portion of the gap between Economics 200 and the current frontier of research in macroeconomics. One thing that will quickly become apparent to you is that when we move up to the next level in macroeconomics it looks a lot like microeconomics. We will not, for example, mention constructs like IS-LM, but rather attempt to discover some of the aggregate implications of setting "marginal this" equal to "marginal that" - you will have acquired the latter skill in Economics 201.

Our approach will be to study a number of the more important recent papers in macroeconomics.[1] We will be concerned with both the conclusions of the papers and how those conclusions are reached. The latter is of great interest because, as a matter of logic, the conclusions are contained within the assumptions. If we can understand "where the rabbit goes into the hat" we will have a much better sense of how a model works and how useful it is to us. Often these papers are quite difficult, so in many cases I have figured out simplified versions that reach qualitatively similar conclusions.[2] My aim is to make the literature accessible to you at the lowest possible cost.[3]

There will be at least eight problem sets during the semester. About half will be fairly quantitative in nature and about half will be more essay oriented. You will receive a letter grade for each. The average of the best six of these grades will determine 60% of your grade in the class. Thus any given problem set could represent 10% of your final grade and so you should treat each problem set as if it were a paper when considering the amount of effort to be applied and the presentation of your work. The remaining 40% of your grade will be determined by a take-home final exam.

Note that the deadlines for submission of your work will be strictly enforced so you will have to approach the Dean of Studies with any requests for extensions etc.

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[1]It would be wrong to conclude that any paper or topic not on our agenda is not important. I have selected some of those that I think are important and interesting but the list is by no means exhaustive. The obvious overlap with my research is, of course, far from coincidental.

[2]This is usually done by working with much larger rabbits!

[3]One way to think about this is that we are going on a journey to the far corners of Macroland. I have been there before and got lost many times along the way. However, I made a good map so that I could find my way back. You will get the benefit of the map but I will allow you to get somewhat lost at times because I found on my first journey that getting lost now and then is essential to making a good map.

Our tentative agenda for the semester is set out below. For most topics I have indicated a number of papers. You are not responsible for any of these unless I say so in class. I have included them here so that you will know the sources of the lecture material.

John Temple of Oxford University, a co-author of mine, maintains a set of resources for the study of economic growth at http://www.nuff.ox.ac.uk/Economics/Growth/ so check it out next time you are on the web!

1. Consumption. Here we will study the modern version of the permanent-income or life-cycle theory of consumption. Apart form its intrinsic importance, this topic will also serve as a vehicle for development of much of the multivariate calculus and dynamic optimization methods needed throughout the course. The seminal work in the area is Hall [1978]. This paper spawned a vast literature that Hall himself contributed to and then summarized and assessed a decade later.[4]

Mankiw, N. Gregory, [1994], *Macroeconomics*, Second Edition, Worth Publishers, New York. Chapter 15.

Hall, Robert E., [1978], "Stochastic Implications of the Life Cycle-Permanent Income Hypothesis: Theory and Evidence," *Journal of Political Economy*, 86:971-87.

Hall, Robert E., [1988], "Intertemporal Substitution in Consumption," *Journal of Political Economy*, 96:339-57.

Hall, Robert E., [1989], "Consumption," in Robert J. Barro (editor), *Modern Business Cycle Theory*, Harvard University Press, Cambridge.

2. Neoclassical Investment Theory.

Mankiw, chapter 17-1.

Robert E. Hall, and Dale Jorgenson, (1967), "Tax Policy and Investment Behavior," *American Economic Review*, 57:391-414.

3. Optimal Growth Models with Exogenous Technical Progress. The main weakness of the Solow growth model studied in Economics 200 is the exogeneity of the saving decision. Here we will allow agents to make decisions about how much of current income to save and how much to consume.

Mankiw, chapter 4.

Gould, David M., and Roy J. Ruffin, [1993], "What Determines Economic Growth?," *Federal Reserve Bank of Dallas Economic Review*, Second Quarter:25-39.

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[4]For those of you interested in such things, my Undergraduate Honours Thesis is based on Hall [1978] and Hall was my dissertation advisor during my Doctoral studies. By now you will have realized that I am hopelessly addicted to footnotes!

Barro, Robert J., and Xavier Sala-i-Martin, [1995], *Economic Growth*, McGraw-Hill, New York. Introduction, Chapters 1 & 2.

4. Endogenous Growth Models. The model studied in the last section leads to the prediction that, in the long-run, the rate of growth of per capita income is the exogenously determined rate of technical progress The most active area of research in macroeconomics in the last decade has been with models that determine the rate of technological progress endogenously.

Azariadis, Costas, and Allan Drazen, (1990), "Threshold Externalities in Economic Development", *Quarterly Journal of Economics*, 105:501-526

Barro, Robert J., and Xavier Sala-i-Martin, [1995], *Economic Growth*, McGraw-Hill, New York, Chapters .

Jones, Larry E. and Rodolfo Manuelli, [1990], "A Convex Model of Equilibrium Growth: Theory and Policy Implications," *Journal of Political Economy*, 98:1008-38.

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

Lucas, Robert E., [1990], "Why Doesn't Capital Flow from Rich to Poor Countries," *American Economic Review Papers and Proceedings*, 80: 92-6.

Rebelo, Sergio, [1991], "Long-Run Policy Analysis and Long-Run Growth," *Journal of Political Economy*, 99:500-21.

Romer, Paul M., [1986], "Increasing Returns and Long-Run Growth," *Journal of Political Economy*, 94:1002-37.

Romer, Paul M., [1990], "Endogenous Technical Change," *Journal of Political Economy*, 98: S71-102.

Romer, Paul M., [1994], "The Origins of Endogenous Growth," *Journal of Economic Perspectives*, 8:3-22.

5. The Convergence Debate. The renewed interest in growth theory has been accompanied by an explosion in empirical work in the area. The latter has been fueled by the development of several important new datasets. Much of the empirical work has centered on the issue of whether or not per capita income levels in different countries tend to converge over time. We will study the different senses in which income levels can converge as well as looking at what the data show. A finding in the negative constitutes evidence against the neoclassical view of growth.

Abramovitz, Moses, [1986], “Catching Up, Forging Ahead and Falling Behind,” *Journal of Economic History*, 46:385-406.

Abramovitz, Moses, and Paul A. David, [1995], Convergence and Deferred Catch-up: Productivity Leadership and the Waning of American Exceptionalism,” in Ralph Landau, Timothy Taylor, and Gavin Wright, editors, *Growth and Development: The Economics of the 21st Century*, Stanford University Press, Stanford.

Barro, Robert J, [1991], “Economic Growth in a Cross-section of Countries,” *Quarterly Journal of Economics*, CVI:407-43.

Barro, Robert J., and Xavier Sala-i-Martin, [1992], “Convergence,” *Journal of Political Economy*, 100: 223-51.

Barro, Robert J., and Xavier Sala-i-Martin, [1995], *Economic Growth*, McGraw-Hill, New York. Introduction, Chapters 1 & 2.

Baumol, William J., [1986], “Productivity Growth, Convergence and Welfare: What the Long-run Data Show,” *American Economic Review*, 1072-85.

Bernard, Andrew B., and Steven N. Durlauf, [1995], Convergence in International Output,” *Journal of Applied Econometrics*, 10:97-108.

Bernard, Andrew B., and Steven N. Durlauf, [1996], “Interpreting Tests of the Convergence Hypothesis,” *Journal of Econometrics*, 71:161-73.

Bernard, Andrew B., and Charles I. Jones, [1996], “Technology and Convergence,” *Economic Journal*, 106:1037-44.

Bliss, C. J. (1995). Capital mobility, convergence clubs and long-run economic growth. Nuffield College working paper no. 100..

De Long, J. Bradford, [1988], “Productivity Growth, Convergence and Welfare: Comment,” *American Economic Review*, 1138-54.

den Haan, W. J. (1995). Convergence in Stochastic Growth Models: the Importance of Understanding why Income Levels Differ,” *Journal of Monetary Economics*, 35:65-82.

Dowrick, S. and D. Nguyen, [1989], “OECD Comparative Economic Growth 1950-85: Catch-up and Convergence,” *American Economic Review*, 1010-30.

Durlauf, Steven. N., [1996], “On the Convergence and Divergence of Growth Rates: an Introduction,” *Economic Journal*, 106:1016-19.

Durlauf, Steven N., and Paul A. Johnson, [1995], "Multiple Regimes and Cross-Country Growth Behavior," *Journal of Applied Econometrics*, 10:365-84.

Fagerberg, J., [1994], "Technology and International Differences in Growth Rates," *Journal of Economic Literature*, 1147-1175.

Galor, Oded, [1996], "Convergence? Inferences from theoretical models," *Economic Journal*, 106: 1056-69.

Islam, N. [1995], "Growth Empirics: a Panel Data Approach," *Quarterly Journal of Economics*, CX:1127-70.

Mankiw, N. Gregory, [1995], "The Growth of Nations," *Brookings Papers on Economic Activity*, 1:275-310.

Mankiw, N Gregory, David Romer, and David N. Weil, [1992], "A Contribution to the Empirics of Economic Growth," *Quarterly Journal of Economics*, CVII:407-37.

Parente, Stephen L., and Edward C. Prescott, [1993], "Changes in the Wealth of Nations," *Federal Reserve Bank of Minneapolis Quarterly Review*, Spring:3-16.

Reezman, Raymond G., Robert Tamura, and Charles Whiteman, [1993], "The Case for Convergence," *American Statistical Association, Proceedings of the Business and Economic Statistics Section*, 59-67.

Sala-i-Martin, Xavier, [1996], "The Classical Approach to Convergence Analysis," *Economic Journal*, 106:1019-36.

Temple, Jonathan, and Paul A. Johnson, [1996], "Social Capability and Economic Development," *Nuffield College Oxford Discussion Paper No. 114*

Quah, Danny, T., [1993], "Galton's Fallacy and Tests of the Convergence Hypothesis," *Scandinavian Journal of Economics*, 95:427-43.

Quah, Danny T., [1996], "Twin Peaks: Growth and Convergence in Models of Distribution Dynamics," *Economic Journal*, 106:1045-55.

6. Income Distribution and Growth. There is a well established literature studying the impact of economic growth on the distribution of income. After briefly considering this we will move on to study the more recent work that considers the feedback in the other direction. This literature provides a positive (as opposed to normative) reason for interest in the distribution of income. One of the channels of influence is through the impact of the distribution of income on political stability. This seems particularly pertinent given the rise in appeal to the US electorate of populist political organizations as the distribution of income has widening in the last 15 to 20 years.

Alesina, Alberto, and Dani Rodrik, [1992], "Distribution, Political Conflict, and Economic Growth: A Simple Theory and Some Empirical Evidence," in Alex Cukierman, Zvi Hercowitz, and Leonardo Leiderman (editors) *Political Economy, Growth, and Business Cycles*, MIT Press, Cambridge.

Bénabou, Roland, [1996], "Heterogeneity, Stratification, and Growth," *American Economic Review*,

Bertola, G., [1993], "Factor Shares and Savings in Endogenous Growth," *American Economic Review*, 83:1184-98.

Blank, Rebecca M., and David Card, [1993], "Poverty, Income Distribution, and Growth: Are They Still Connected?," *Brookings Papers on Economic Activity*, 2:1993:285-339.

Galor, Oded, and Joseph Ziera, [1993], "Income Distribution and Macroeconomics," *Review of Economic Studies*, 60:35-52

Glomm, Gerhard, and B. Ravikumar, [1992], "Public versus Private Investment in Human Capital: Endogenous Growth and Income Inequality," *Journal of Political Economy*, 100:818-834.

7. Option Pricing Theories of Investment. While providing a number of valuable long-run insights, the neoclassical investment model studied earlier has difficulty when confronted with the volatility of investment spending. Option pricing models show that if investment projects are irreversible and can be delayed then investment may be highly sensitive to uncertainty.

Benanke, Ben, [1983], "Irreversibility, Uncertainty, and Cyclical Investment, " *Quarterly Journal of Economics*, 98:85-106.

Pindyck, Robert S., [1991], "Irreversibility, Uncertainty, and Investment," *Journal of Economic Literature*, 29:1110-48.

Pindyck, Robert S., and Antrés Solimano, [1993], "Economic Instability and Aggregate Investment," in Oliver Jean Blanchard and Stanley Fischer (editors), *NBER Macroeconomics Annual*, MIT Press, Cambridge.