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Course website:
http://www.econ.ku.dk/okocg/VV/VV-2012/EconomicGrowth-2012-front.htm

Course plan for Economic Growth

Spring 2012
Lectures: Fridays 10-12, CSS 2.1.30
Class exercises (Niklas Brønager): Wednesdays 8-10, CSS 7.0.22

Textbook:
Daron Acemoglu, *Introduction to Modern Economic Growth*, Princeton Univ. Press, 2009. The chapters are referred to as Ch. x.
In addition, some lecture notes (denoted LN) and supplementary articles, see syllabus below.

Lecture plan (final)

I. Setting the stage (and providing a common language)

A. Facts about growth and world income distribution. Average compound rate of growth. Different concepts of income convergence: Ch. 1. LN 1. Cursory: Jones and Romer (2010).

B. The Solow model in continuous time. Terminology of the course. Types of neutral technical progress: Ch. 2.1, 2.4-6; LN 2.

C. Basic balanced growth theorems. Comparative dynamics: Ch. 2.7-9; LN 3, LN 4.

D. Growth accounting vs. sources of growth. Speed of (within-country) convergence; Barro regressions: Ch. 3.1-2; LN 5, LN 6.

E. Technology differences across countries: Ch. 3.5.1; Bernard & Jones (1996) cursory; Exercise Problem III.6.

F. Knowledge, population, and aggregate economies of scale: Ch. 4.2; Kremer (1993) §I-III (IV-V cursory).

G. Proximate vs. fundamental determinants of differences in economic performance: Ch. 4.1, 4.3-8.

II. Basic macro-dynamic frameworks

A. Brush-up of the Ramsey model (basic representative agent model) with exogenous technical progress.

1. The model. Phase diagram and transitional dynamics: Ch. 8.1-2, 8.4-5, 8.7-12.

2. A social planner. Choice of social discount rate. Application: social cost-benefit analysis in climate change mitigation. Ch. 8.3; LN 7; Arrow (2007) cursory.

B. Brief brush-up of Diamond's OLG model. Ch. 9.2 cursory.

C. Human capital.

1. Life-cycle approach; Separation Theorem: Ch. 10.1.

2. Human capital formation: a simple case: LN 8, Ch. 10.2 cursory, Exercise Problem V.7.

D. The Nelson-Phelps perspective on human capital (technology transfer, ability to catch-up): Ch. 10.8. Exercise Problem V.3.

III. Accumulation-based endogenous growth

A. The simplest AK model: Ch. 11.1.

B. Reduced-form AK models.

1. Physical and human capital: Ch. 11.2; LN 9.
2. Learning-by-investing models: Arrow's version vs. Romer's version: LN 10; Ch. 11.4-5.
3. Productive government services. Exercise Problem VI.4.

C. Semi-endogenous vs. fully endogenous growth: LN 10.

D. Empirics on learning. Embodied technical change. Weak and strong scale effects. Static comparative advantage vs. dynamics of learning by doing. Resource curse?: LN 11 (§1-3 and 5 only cursory); LN 12.

IV. Innovation-based endogenous growth

A. Modeling technical change: Ch. 12.1-2 and 12.5.

B. Horizontal innovations: expanding-input varieties.

1. The lab-equipment model. Social planner. Implementation of social planner's solution: Ch. 13.1; LN 13.
2. The knowledge-spillover model: Romer's version vs. Jones' version: Ch. 13.2-3; Exercise Problem VII.6.

C. Very brief summary on vertical innovations: expanding input quality and creative destruction (quality ladder models): Ch. 13.5 and 14.5, all cursory.

V. Natural resources, environment, and sustainable economic growth

Sustainable development; renewable resources; non-renewable resources; the CES function applied as description of preferences and technology: LN 14, all cursory.

In order to go in for the final written exam (three hours, closed book) at the end of the semester it is required that *two* homework assignments have been handed in and accepted.

Syllabus for Economic Growth (final)

Spring 2012

Acemoglu, D., 2009, *Introduction to Modern Economic Growth*, Princeton Univ. Press. Selected chapters, see lecture plan.

Arrow, K. J., 2007, Global Climate Change: A Challenge to Policy, *The Economists' Voice 4*, Iss. 3, Article 2, 1-5. Cursory.

Bernard, A. B., and C. I. Jones, 1996, Technology and Convergence, *Economic Journal 106,* 1037-1044. Cursory.

Jones, C. I., and P. M. Romer, 2010, The new Kaldor facts: Ideas, institutions, population, and human capital, *American Economic Journal: Macroeconomics*, vol. 2 (1), 224-245. Cursory.

Kremer, M., 1993, Population Growth and Technological Change: One Million B.C. to 1990, *Quarterly Journal of Economics 108*, no. 3 (§IV-V only cursory).

Lecture Notes 1-14.

Apart from the Acemoglu book, all the texts are downloadable for students with access to the course pack at the course website.

Cursory reading

The items in the above list are referred to in the course plan. Some items are classified as only cursory reading. This implies that you should read them in order to obtain general knowledge of the main point whereas you do not have to master the technicalities unless they are also part of the non-cursory syllabus. The mathematical tools that you are supposed to master (because they are central to dynamic macroeconomic analysis and problem solving) are underlined in the lectures and the exercise class.

Before the exam. Before the exam it is recommended that you refresh your memory of the exercise problems solved in class (not only those problems mentioned in the course plan above) and the two homework assignments discussed during the semester.

It is also recommended that you check the *correction lists* that have appeared on the course website during the semester and which list typos etc. in the textbook, lecture notes, articles, and exercise problems.

Supplementary textbooks

Easy going:

Jones, C., 2002, *Introduction to Economic Growth*, 2nd. ed., Norton, New York. A very clear exposition.

Valdés, B., 1999, *Economic Growth. Theory, Empirics, and Policy*, Edward Elgar. Includes entertaining discussions.

Weil, D., 2009, *Economic Growth*, 2nd ed., New York: Pearson. Contains a lot of data.

More demanding texts:

Aghion, P., and P. Howitt, 1998, *Endogenous Growth Theory*, MIT Press.

Aghion, P., and P. Howitt, 2009, *The Economics of Growth*, MIT Press.

Aghion, P., and S.N. Durlauf, eds., 2006, *Handbook of Economic Growth.* Vol. 1A-1B. Amsterdam (a volumnious handbook for researchers; also many useful things for students).

Barro and Sala-i-Martin, 2004, *Economic Growth*, second ed., MIT Press.

Supplementary articles

Alesina, A., and D. Rodrik, 1994, Distributive Politics and Economic Growth, *Quarterly Journal of Economics 109*, no. 2.

Alvarez, M. J., and C. Groth, 2005, Too Little or Too Much R&D? *European Economic Review 49*, 437-456.

Groth, C., 2007, A New-Growth Perspective on Non-renewable Resources. In: L. Bretschger and S. Smulders, eds., *Sustainable Resource Use and Economic Dynamics*, Springer: Dordrecht, pp. 127-163.

Islam, Nazrul, 2003, What have we learnt from the convergence debate? *Journal of Economic Surveys 17*, 3, 309-362.
Jones, Charles I., 1995, R&D-based Models of Economic Growth, *Journal of Political Economy 103* (excl. §4-5).
Jones, Charles I., 2002, Sources of U-S. Economic Growth in a World of Ideas, *American Economic Review 92*, 1, 220-239. Cursory.
Jones, Charles I., 2007, A simple Mincerian approach to endogenizing schooling. Working paper.
Perotti, R., 1996, Growth, Income Distribution, and Democracy: What the Data Say, *Journal of Economic Growth 1*, 149-87.
Rodrik, D., 2004, Growth Strategies. Manuscript for a chapter in *Handbook of Economic Growth*, ed. by P. Aghion and S. Durlauf (PDF version on the course website).
Smulders, S., 1995, Entropy, Environment, and Endogenous Economic Growth, *International Tax and Public Finance 2*, 319-340.
