The Theory of Economic Growth
Spring 2005

Professor: Todd Keister
http://ciep.itam.mx/~keister/growth.html
Telephone: 5628-4000, ext. 2967
e-mail: keister@itam.mx

Introduction: This course provides a thorough introduction to the modern theory of economic growth and development from a macroeconomic perspective. We will study a variety of mathematical models of the growth process. Our primary interests will be (i) attempting to explain the patterns of growth and development observed in historical data and (ii) trying to understand how various government policies can affect the long-run growth experience of a country.

Readings: We will not follow any one textbook. Rather, I will assign readings for each topic from the following sources:

- [S] *Apuntes de Crecimiento Económico*, by Xavier Sala-i-Martin (2ª Edición, Antoni Bosch Editor, 2000)
- [E] *The Elusive Quest for Growth*, by William Easterly (MIT Press, 2001)
- [BS] *Economic Growth*, by Robert J. Barro and Xavier Sala-i-Martin (Second Edition , MIT Press, 2004)

The book that most closely follows the course is [S], which is written in Spanish. [BS] is set at a slightly more advanced level, and covers some topics in more detail. It also contains a more comprehensive and up-to-date analysis of macroeconomic data. [E] is a non-technical book written for general audiences that is extremely interesting reading. Specific readings from these books are listed for each of the course topics in the outline below.

Course Requirements: Course grades will be based on two exams, each worth 50% of your final grade. The first exam will be held in class on **March 7** (note the change from the original date). The second exam will be held during the final exam period as assigned by the university.

In addition, sets of homework problems will be assigned regularly. While they do not count toward your grade, these problems are the best way to test your understanding of the material and to practice for the exams. It is therefore extremely important that you (individually) work through all of the assigned problems. Also, you are expected to attend every class session. The material in this course is not easy, and is difficult to master simply by reading over lecture notes and textbooks.

Web Page: Homework assignments, solutions, and other course materials will be posted on the course website. The address is listed at the top of this page.

Language: The course will be taught in English. Homework assignments and exams may be completed in either English or Spanish.

Office Hours: I will be available in my office to answer questions on Mondays and Wednesdays from 4:00 pm – 5:00 pm.

Course Outline

I. Neoclassical Growth Theory

We will begin by going through the neoclassical growth model in detail. This model provides the foundation for a large part of modern macroeconomics. We will study both optimal growth and competitive equilibrium in this model, and examine the relationship between these concepts.

- Introduction (*Reading*: [S] Introduction , [BS] Introduction)
- The optimal growth problem (*Reading*: Course Handout, [BS] Appendix A.3)
- The Ramsey-Cass-Koopmans model (*Reading*: [BS] Chapter 2, [S] Chapter 3)
- Adding productivity growth to the model (*Reading*: [S] Chapter 4)

II. Applications of the Theory

Next we will look at some applications of this basic theory, and we will attempt to use the theory to understand the patterns of growth observed in the historical data.

- Growth accounting (*Reading*: [BS] Chapter 10, [S] Section 10.10)
- Taxation and growth (*Reading*: [BS] Section 3.1)
- Aid for development (*Reading*: [E] Chapters. 1-3)
    - The Harrod-Domar and Solow models (*Reading*: [BS] Chapter 1, [S] Chapter 1)

III. Endogenous Growth Theory

Finally, we will examine some more recent developments in growth theory. Each of the models in this section focuses on a different aspect of why economies grow. We will use these models to investigate the important "sources" of observed economic growth and to examine the effects of various government policies.

- Human capital (*Reading*: [S] Chapter 8, [E] Chapter 4, [BS] Chapter 5)
- (Simple) Increasing returns – The Ak model (*Reading*: [S] Chapter 5, [BS] Section 4.1)
- Research and development – The Romer model (*Reading*: [S] Chapter 9, [BS] Chap. 6)
- Technology diffusion (*Reading*: [BS] Chapter 6)