Llicenciatura en Administració i Direcció d'Empreses ***2011-12***
Llicenciatura en Economia

Macroeconomics I (11843)

The focus of this course is on economic growth and the dynamics of the economy in the medium-long run. We will study the main macroeconomic models used for that analysis (the Solow growth model, models with endogenous savings, with human capital and externalities, with R&D and technological progress) as well as their empirical implications.

I. THE SOLOW MODEL

1. WHY THE SOLOW MODEL?
   - Focus on the accumulation of physical capital
   - Capital accumulation and savings alone cannot explain long-run growth
   - A dynamic general equilibrium model

2. STATIC AND DYNAMIC GENERAL EQUILIBRIUM MODELS
   - What is a general equilibrium model
   - Static general equilibrium models
   - Capital as a production factor
   - From a static to a dynamic model

3. THE SOLOW MODEL AT A MOMENT IN TIME
   - A model of output and factor prices: i) preferences; ii) production; iii) market structure
   - The static equilibrium: i) labor market; ii) rental market for capital

4. SAVINGS, INVESTMENT AND THE CREDIT MARKET
   - Investment and savings meet in the credit (loan) market
   - The rent or buy decision. The user cost of capital
   - The credit/loan market equilibrium
   - Credit market equilibrium and the link between present and future (capital accumulation)

5. THE DYNAMICS OF THE SOLOW MODEL
   - The dynamics of capital accumulation
   - From capital accumulation to growth of output per worker
   - Real wage growth and changes in the real interest rate

6. THE EFFECTS OF AN INCREASE IN SAVINGS ON INCOME
   - Growth in the long run (the balanced growth path)
   - Output per worker in the long run

7. QUANTITATIVE IMPLICATIONS OF THE SOLOW MODEL
   - Effect of savings on long run income
   - The speed of convergence
   - Income per capita versus output per worker

8. EMPIRICAL APPLICATIONS
   - Growth accounting
   - The Asian “Tigers”; US versus EU
   - Productivity level accounting
   - Convergence: i) definition and mechanisms; ii) convergence across countries and across regions; iii) conditional convergence

II. ECONOMIC GROWTH WITH ENDOGENOUS SAVINGS

1. HOUSEHOLD SAVINGS BEHAVIOR
   - The Keynesian consumption function
   - Permanent income theory
   - Optimal consumption and (savings) in continuous time: i) intertemporal budget constraint; ii) rate of time preference; iii) first-order condition

2. THE RAMSEY-CASS-KOOPMANS MODEL
   - Equilibrium growth with infinite-horizon households: i) technology; ii) household behavior; iii) dynamic equilibrium system
   - Equilibrium growth and optimality
   - Applications: i) government spending; ii) debt versus taxes

3. THE DIAMOND MODEL
   - Overlapping generations models
   - Equilibrium growth: i) technology; ii) household behavior; iii) dynamic equilibrium system
   - Equilibrium growth and optimality
   - Applications: i) government spending; ii) debt versus taxes

III. HUMAN CAPITAL AND EXTERNALITIES

1. THE ROLE PLAYED BY CAPITAL IN PRODUCTION
   - Decreasing returns to capital
   - Convergence
   - The effect of savings on long run income

2. A SIMPLE MODEL OF ENDOGENOUS GROWTH
   - The AK model
   - The AK model and capital income shares

3. EXTERNALITIES AND ENDOGENOUS GROWTH
   - Capital income shares and the effect of capital on output
   - Rivalry, excludability, and externalities
   - Aggregate implications of capital externalities

4. HUMAN CAPITAL AND ENDOGENOUS GROWTH
   - Human capital and physical capital: similarities and differences
   - Human capital externalities. Aggregate and individual returns
   - Human capital and technological progress

IV. R&D AND ECONOMIC GROWTH

1. HOW TO MODEL GROWTH WITH RESEARCH AND DEVELOPMENT
   - The framework
   - The production of ideas

2. THE MODEL WITHOUT CAPITAL
   - Equilibrium dynamics
   - Balanced growth path and stability

3. THE MODEL WITH CAPITAL
   - Capital accumulation

- Equilibrium dynamics and balanced growth paths

4. APPLICATION: IDEAS AND POPULATION GROWTH
   - Population growth and subsistence. The Malthusian hypothesis
   - Technological change and population growth

Bibliography

Basic reference:

- David Romer, *Advanced Macroeconomics*, 3rd edition, McGraw-Hill, 2006, chapters 1-3.

Additional references:

- Xavier Sala-i-Martin, *Apuntes de Crecimiento Económico*, Antoni Bosch, 2000.

Teaching resources such as slides and problem sets will be made available on Aula Global.