MACROECONOMICS 2

WINTER SEMESTER

Number of credits: 4
Type of course: Core
Number of lecture hours: 42 (approximately)
Evaluation: Mid semester: 50%, End semester: 50%
Course lecturer: Sushama Murty

The course introduces students to new developments in growth theory, their possible extensions and popular applications. We will cover as many of the topics below as permitted by time. Broadly the course aims to cover growth models with exogenous savings, models with consumer optimization, and models of endogenous growth with extensions to inclusion of knowledge spillovers, public goods/ infrastructure, and human capital. An introduction to select developments in macroeconomics over the recent years in terms of the use of the optimal growth models is provided. The main applications are to the use of the infinite horizon consumer optimization to savings and investment in the open economy, and applying overlapping-generations models to social security and altruism. There is a module on demand for money, and finally an introduction to the theory of short run economic fluctuations, with focus on real business cycles to explain the cyclical behavior of employment and output.

Introduction to growth theory
Importance and motivation to study growth; empirical regularities about economic growth, history of modern growth theory.

Growth models with exogenous saving rates

- The Solow-Swan model
  Basic structure; model solutions without and with markets, steady state, golden rule of capital accumulation and dynamic inefficiency, transitional dynamics, comparative statics, extensions to technical progress and physical and human capital, application to convergence, poverty traps and growth accounting
- The A-K model
  Motivating the precincts of endogenous growth, basic structure of the A-K model with exogenous savings; endogenous growth and transitional dynamics

Growth models with endogenous savings

- Dynamic optimization in the context of growth models – discrete and continuous time models.
- The Ramsey-Cass-Koopman?s model of consumer optimization
  Basic model structure for the decentralized market economy; transitional dynamics; balanced growth path and golden rule capital stock, comparative statics, comparison with social planner?s solution; extension to include government purchases and open economy context.
- The Diamond?s overlapping generations model
  Model setup, dynamics of the decentralized economy, balanced growth path, possibility of dynamic inefficiency of the market economy, extending the model to include government and characterizing the command optimum.

Models of endogenous growth

- The A-K model (with endogenous savings)
  Model structure; market equilibrium; transitional dynamics.
- The learning-by-doing and knowledge spillovers model
  Motivating the role of learning-by-investing and knowledge spillovers; characterizing the balanced growth path and the transitional dynamics; Pareto non-optimality and policy implications.
- Model of public good/ infrastructure and endogenous growth
- Models with human-capital (one-sector and two-sector models)
  Basic one sector model with both physical and human capital; models with two sectors of production (with differing technologies for production and education); the Uzawa-Lucas model; steady state analysis; transitional dynamics.

Investment and Saving in the Open Economy

- Application of the basic Ramsey model to investment and savings in the open economy; q-theory of investment; characterizing the steady state and the dynamics with respect to behavior of consumption, investment, capital stock, and current account balance; effect of productivity shocks to the current account.

Altruism, Social Security and Capital Accumulation

- Application of Diamond?s market economy model to incorporate altruism; application to social security (fully funded schemes versus pay-as-you go systems) and implications for capital accumulation.

Demand for Money

- The overlapping generations model without and with money; cash-in-advance model of demand for money; money in the utility function (Sidrauski model); money as an intermediate good (Ljungqvist and Sargent model).

Real business cycle dynamics.

- Basic theory of fluctuations; a baseline real-business cycle model; intertemporal substitution in labor supply by households, intra-temporal trade-off between consumption and labor supply; consumption and labor supply with uncertainty; explanation for output and employment fluctuations for special and general cases of the model

Main references (additional references will be provided during lectures as required.)

1. Acemoglu, Daron (AD). Introduction to modern economic growth.Princeton University Press, 2009
2. Barro, Robert J and Sala-i-Martin, Xavier (B&SM). Economic Growth. Second Edition. Prentice Hall, India. 2004.
3. Blanchard, Olivier Jean and Fischer, Stanley (B&F). Lectures on Macroeconomics. 1996. Prentice Hall of India.
4. Kamien, Morton I, and Schwartz, Nancy L (K&S). Dynamic Optimization: The Calculus of Variations and Optimal Control in Economics and Management. Second Edition. North Holland, London. 1993. Part II:
5. Romer, David (DR). Advanced Macroeconomics. Second Edition. McGraw-Hill International Edition (Economics Series). 2001.
6. Wickens, Michael (MW). Macroeconomic Theory: A Dynamic General Equilibrium Approach. 2008. Princeton University Press. Princeton and Oxford.