

Code: ECON-411

Title: Economic Dynamics

Credit Hours: 03

Prerequisite: Advanced Microeconomics, Advanced Macroeconomics and Calculus-II

Objectives:

This is an introduction to the analysis of difference and differential equations, including the solution of the simplest linear dynamic systems, the linearization of non-linear systems and the use of phase diagrams. It aims at providing necessary techniques for graduate students to analyze economic dynamics

Course Contents

Introduction

Definitions and concepts, Dynamic models, Deterministic dynamical models, Difference equations, Attractors and repellers, Nonlinear dynamical systems, Continuous models Continuous differential equations.

Demand and Supply Dynamics

The linear cobweb model, Different expectations, The Goodwin model of expectations, Nonlinear cobwebs, Ceilings and floors, Cobwebs in interrelated markets

Simple Keynesian Dynamics

The Keynesian-cross diagram, The dynamic multiplier, A dynamic model with taxes, The multiplier-accelerator model, Introduction of net exports

Constructing trajectories in the phase plane

Trajectories and fixed points, Isoclines and vector forces: continuous models, Isoclines and vector forces: discrete models, A variety of trajectories, Limit cycles, Lorenz, curves and strange attractors

IS-LM dynamics

The static model, Instantaneous money market adjustment, a continuous IS-LM model A discrete version of the IS-LM model, Interest rate ceiling

Inflation-unemployment dynamics

The Phillips curve, a simple macroeconomic model of inflation, the dynamics of the simple model, Dynamic model with positive inflation, a change in the money supply A change in the natural level of unemployment.

Dynamics of the firm

Introduction, Monopoly and advertising, Advertising model: discrete version, Diffusion models, Static theory of oligopoly, Discrete dynamic model with output adjusting Instantaneously, Dynamic oligopoly with three firms, Partial-adjustment duopoly model.

Saddles and Rational Expectations

What are saddles? The Dornbusch model under perfect foresight, Announcement effects Discrete systems exhibiting saddle solutions

Fiscal Dynamics

Budgetary concepts, Budget dynamics with no inflation and no monetary financing, Budget dynamics with inflation and money plus bond financing, Budget criteria of the Maastricht

Treaty

Recommended Books:

- Shone. R. (2001). An introduction to economic dynamics. Cambridge University Press.
- Shone. R. (2002). Economic Dynamics: Phase Diagrams and their applications