



Course: Macroeconomics I
Faculty: Christopher Busch
Term: Fall
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Description:

This course provides the introduction into modern dynamic macroeconomics. We will discuss both deterministic and stochastic economies with complete markets. The course will cover endowment economies, the neoclassical growth model, and introduce models with overlapping generations. Along the way, we will discuss dynamic programming.

Objective:

This course has 4 major educational aims: 1) Understand the concepts of efficient allocations, 2) Understand the concepts of competitive equilibria (time-0 trading; sequential markets), 3) Become familiar with the neoclassical growth model in sequential and recursive form and several of its applications, as well as the overlapping generations model, 4) Become familiar with dynamic programming.

Outline:

1. Deterministic neoclassical growth model (LS ch. 7; K ch. 3, 7):
 - a. social planner, equilibrium concepts, solution methods, welfare theorems
 - b. Application: calibration of model (CP sec. 4)
2. Dynamic programming (K ch. 4-5, SL ch. 3-4, LS ch. 3)

3. Stochastic models (K ch. 6, LS ch. 8)
 - a. Representation of risk
 - b. Time-0 trading and sequential trading equilibrium in endowment economy
 - c. Stochastic neoclassical growth model (RBC-model)
 - d. Application: discussion of model calibration (CP sec. 6-7; KPR) and discussion of capital-skill complementarity (KORV)
4. Overlapping generation models (K ch. 8, LS ch. 9)
 - a. Time-0 trading and sequential trading equilibrium in endowment economy
 - b. (Possible) Pareto inefficiency of equilibria and positive value of outside money
 - c. Pay-as-you-go pension systems
 - d. Production economy

References:

The main references for the course are:

- (K) Krueger, D., 2017: "Macroeconomic Theory", teaching manuscript.
- (LS) Ljungqvist, L. and T. Sargent, 2004: "Recursive Macroeconomic Theory", MIT Press.
- (SL) Stokey, N. L. and R. E. Lucas, Jr., 1989: "Recursive Methods in Economic Dynamics", Harvard University Press.

Additional references for applications:

- (CP) Cooley, T. F. and E. C. Prescott, 1995: "Economic Growth and Business Cycles", in Cooley, T.F. (ed.): *Frontiers of Business Cycle Research*, Princeton University Press.
- (KPR) King, R. G., C. I. Plosser, and S. T. Rebelo, 1988: "Production Growth and Business Cycles. I. The Basic Neoclassical Growth Model", *Journal of Monetary Economics*, 21, pp. 195-232
- (KORV) Krusell, P., L. E. Ohanian, J.-V. Ríos-Russ, and G. L. Violante, 2000: "Capital-Skill Complementarity and Inequality: A Macroeconomic Analysis", *Econometrica*, 68 (5), pp. 1029-1053

Additional references will be pointed out along the way.

Grading:

Problem sets (20%), Final exam (80%).