

FREIE UNIVERSITÄT BERLIN

Summer Term 2022

Course title: Frictional Labor Markets and the Macroeconomy

Instructor: Prof. Monika Merz, Ph.D.

Time: May 11 – 24, 2022 (compact course)

COURSE CONTENT

This course is aimed at advanced master level students and beginning doctoral students. It covers the foundations of general equilibrium models that are commonly used in modern macroeconomics. The course presents the basics of dynamic programming, selected time-series methods and alternative numerical techniques commonly used to solve recursive stochastic models in discrete time. All techniques are illustrated with the help of the neoclassical growth model, and subsequently used for studying dynamic models with frictional labor markets. The goal is to equip students with the tools needed to do independent research in macro and related fields.

TEACHING PRINCIPLE

This course is taught in a highly interactive fashion and with lots of hands-on practice and in-group exchange.

REQUIRED TEXTS

Ljungqvist, L., T. Sargent 2018. Recursive Macroeconomic Theory, 4th edition, Boston (MIT-Press). Abbreviated as **LS**

Miranda, M., P.L. Fackler 2002. Applied Computational Economics and Finance, Boston (MIT-Press). Abbreviated as **MF**

Additional journal articles.

GRADING

The course grade is based on a final exam (100%). Students can collect extra credit by solving and submitting the practice problems (20%). Fifty percent of all possible points are required for passing.

COURSE OUTLINE

1. The Lucas' critique and its implications for modern macroeconomics

Primary reading:

Lucas, R.E. 1975. „Econometric Policy Evaluation: A Critique,“ in K. Brunner, A. Meltzer, eds., *The Phillips Curve and Labor Markets*, North Holland.

V.V. Chari 1998. “Nobel Laureate Robert E. Lucas, Jr.: Architect of Modern Macroeconomics,” *Journal of Economic Perspectives*, 12:171-186.

2. (Recursive) competitive equilibria with complete markets - applications

Primary reading: LS ch. 8 and 12

2.1 The Neoclassical Growth Model – Social Planner's Version

2.2 The Neoclassical Growth Model – Competitive Equilibrium Version

2.3 The Neoclassical Growth Model – Alternative Representations

3. An introduction to dynamic programming plus applications

Primary reading: LS ch. 3 and 4

3.1 Bellman principle of optimality

3.2 Contraction mapping

3.3 Benveniste-Scheinkman

4. More tools for studying dynamic stochastic general equilibrium models

Primary reading: MF ch. 6.2

Tauchen, G. 1986. "Finite-state Markov-chain approximations to univariate and vector autoregressions," *Economics Letters* 20:177-181.

4.1 Markov chains with applications

4.2 Chebychev polynomial approximations

5. Frictional labor markets in macroeconomics

Primary reading: LS ch. 6

5.1 McCall's search model

5.2 Diamond-Mortensen-Pissarides with business cycles

5.3 Fernandez-Villaverde, F. et al., *JME* 2021