Macro I - Fall 2018

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Classroom: WGR 411 at 9:30- 12:00 on Thursday
Recitation: TBD
TA: Muran Chen

Course Description:

This course presents standard frameworks used in modern macroeconomics. Dynamic programming will be emphasized as a method for formulating and solving decision problems. Dynamic programming will also influence how we define notions of equilibrium and compute them.

Several homeworks will involve using standard programming languages (e.g. Matlab) to compute equilibria or solutions to dynamic programming problems.

Textbook Sargent and Ljungqvist, Recursive Macroeconomic Theory, "Second Edition"

Grading: Homeworks (20 %), Midterm (30 %) and Final (50 %)

Outline:

1. Methodology / Bedtime Reading

   Lucas (1981 a, 1981 b)

   Sargent and Ljungqvist CH 1 and Preface

2. Dynamic Programming

   Finite horizon and infinite horizon problems

   Bellman's equation

   Value functions: existence, continuity, concavity and differentiability

   Key Examples: Income Fluctuation Problem, Optimal Growth Problem, Search Problem, Human Capital Problem

   Readings: Sargent and Ljungqvist (2004, CH 1-6 and Appendix A) is useful for getting started. Stokey and Lucas (1989, CH 2-4) is the standard reference for deterministic and stochastic dynamic programming methods in relation to economic dynamics.

3. Consumption in Exchange Economies

   OVERVIEW: Sargent and Ljungqvist (2004, CH 8)

   Planner's Problem

   Efficient Allocations vs Competitive Equilibrium Allocations

   Time-1 Markets versus Sequential Markets Formulation

   Tests of Perfect Consumption Insurance: Cochrane (1991)

4. Asset Pricing

   OVERVIEW: Ljungqvist and Sargent CH 13 and Cochrane (2001)

   Lucas Asset Pricing Model: Lucas (1978)

   Equity Premium: Mehra and Prescott (1985)

   Stochastic Discount Factor Restrictions Implied by Data: Hansen and Jagannathan (1991)

   How to Price a Non-traded asset.

5. Neoclassical Growth Model

   OVERVIEW: Ljungqvist and Sargent CH 11- 12

   Efficient Allocations versus Competitive Equilibrium Allocations

   OG vs Infinitely-lived Agents

   Recursive Equilibria (little k, big K)

   Steady States and Balanced Growth

   Steady States and Taxation

   Government Debt

   Equilibria with Animal Spirits?

   Basic Model with Technology Shocks

6. Models with Idiosyncratic Risk and Incomplete Markets

   OVERVIEW: Ljungqvist and Sargent CH 16-17

   Basic Models: Huggett (1993, 1997), Aiyagari (1994)

   Steady States

   Effects of a One-Time Wealth Redistribution: Huggett (1997)

   Basic Model with Technology Shocks: Krusell and Smith (1998)

   Welfare Effects of Eliminating Aggregate Shocks: Krusell, Mukoyama, Sahin and Smith (2009)

References:

Aiyagari (1994), Uninsured Idiosyncratic Risk and Aggregate Savings, Quarterly Journal of Economics, 109, 659-84.

Cochrane (1991), A Simple Test of Consumption Insurance, *Journal of Political Economy,* 99, 957-76.

Cochrane (2001) Asset Pricing, Princeton University Press.

Hansen and Jagannathan (1991), Implications of Security Market Data for Dynamic Economic Models, Journal of Political Economy.

Huggett (1993) The Risk-Free Rate in Heterogeneous-Agent Incomplete-Insurance Economies, Journal of Economic Dynamics and Control, 17, 953-69.

Huggett (1997), The One-Sector growth Model with Ideiosyncratic Shocks: Steady States and Dynamics, JME.

Krusell and Smith (1998), JPE.

Krusell, Mukoyama, Sahin and Smith (2009), Revisiting the Welfare Effects of Eliminating Business Cycles, RED.

Lucas (1978) Asset Prices in an Exchange Economy, Econometrica 46, 1426-45.

Lucas (1981 a) Econometric Policy Evaluation: A Critique, reprinted in Studies in Business Cycle Theory, MIT Press.

Lucas (1981 b) Methods and Problems in Business Cycle Theory, reprinted in Studies in Business Cycle Theory, MIT Press.

Mehra and Prescott (1985) The Equity Premium: A Puzzle, Journal of Monetary Economics 15, 145-62.

Sargent and Ljungqvist (2004) Recursive Macroecomic Theory, Second Edition, MIT Press.

Schechtman (1976) An Income Fluctuation Problem, Journal of Economic Theory 12, 218-41.

Stokey and Lucas (1989) Recursive Methods in Economic Dynamics, Harvard University Press.