SIMON FRASER UNIVERSITY
Department of Economics

Econ 809 – ADVANCED MACROECONOMIC THEORY
Syllabus – Spring 2004

Prof. Kasa   Office Hours: Tue. 2:30 – 3:30
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COURSE OBJECTIVES AND PREREQUISITES

Standard representative agent models in macroeconomics are successful along some dimensions, and are useful as theoretical benchmarks, but they also suffer some important shortcomings. They do not explain microeconomic data on consumption and saving, they have only modest success in explaining business cycles, they are abject failures in explaining asset prices, and almost by definition, they are incapable of explaining unemployment.

This course will address these deficiencies. The general theme will be to introduce *frictions* of various kinds. Two general types of frictions will be studied: (1) Search and Matching frictions, and (2) Frictions arising from asymmetric information and limited commitment. Search and matching frictions are used to study unemployment and monetary theory. Asymmetric information and limited commitment generate endogenously incomplete markets and imperfect risk-sharing. These so-called "heterogeneous agents" models will be applied to a variety of topics: (1) dynamic optimal taxation, (2) unemployment insurance, (3) asset pricing, (4) business cycles, (5) international trade policy, and (6) international capital flows.

There is an important unifying methodological theme running throughout the course; namely, the use of recursive methods (eg, dynamic programming) to formulate and analyze complex dynamic stochastic general equilibrium models. One of the goals of the course will be to learn how to think in terms of state variables and Bellman equations. Another goal will be to learn how to solve Bellman equations, both analytically and numerically.

COURSE STRUCTURE

The first few weeks of the course will be devoted to learning some of the tools of modern macroeconomics. These include: Markov chains, stochastic difference equations and lag operators, Fourier transforms and spectral densities, and Bellman equations. Students will be asked to write simple MATLAB programs that implement the ideas discussed in class. The remainder of the course will put these tools to use in a variety of economic settings.

COURSE EVALUATION

		Weight in Grade
Problem Sets	–	20%
Term Paper	–	20%
Midterm exam **(Tuesday, March 2)**	–	30%
Final exam **(date to be arranged)**	–	30%

The paper should be 15-20 pages. It can be a literature review, a replication of previous results, or even the start of a thesis! The problem sets will be available as PDF files on the class webpage (at www.sfu.ca/k̃kasa/).

COURSE MATERIALS

There is one required book for this course: *Recursive Macroeconomic Theory*, by Lars Ljungqvist and Thomas Sargent (1st Edition, 2000) published by MIT Press. There are also a number of journal articles, working papers, and supplementary notes that are available for download on the course webpage. Students desiring a more comprehensive and rigorous treatment of recursive methods should consult Stokey and Lucas' treatise *Recursive Methods in Economic Dynamics*, published in 1989, but still in print. Finally, Sargent's classic texts *Macroeconomic Theory* and *Dynamic Macroeconomic Theory*, both published in 1987, are still useful and still in print.

Lungqvist and Sargent's book is available at the campus bookstore and on reserve at the library.

COURSE OUTLINE AND READINGS

Readings marked with a (*) are downloadable from the course webpage.

I. RECURSIVE METHODS (6 lectures)

Jan. 6   –   **Introduction and Overview**
Ljungqvist & Sargent, Preface

Jan. 8   –   **Time Series and Markov Chains**
Ljungqvist & Sargent, Chpt. 1
Sargent (1987), *Macroeconomic Theory*, Chpt. 11

Jan. 13   –   **Functional Equations and Dynamic Programming**
Ljungqvist & Sargent, Chpts. 2 and 20

Jan. 15   –   **Practical Dynamic Programming I**
Ljungqvist & Sargent, Chpt. 3 (pgs. 39-47)

Jan. 20   –   **Practical Dynamic Programming II**
Ljungqvist & Sargent, Chpt. 3 (pgs. 47-51)
  *   McGrattan (1998), "Application of Weighted Residual Methods to Dynamic ..."

Jan. 22   –   **Linear-Quadratic Dynamic Programming**
Ljungqvist & Sargent, Chpt. 4
  *   Blanchard & Kahn (1980), "The Solution of Linear Difference Models under ..."
  *   Uhlig (1999), "A Toolkit for Analyzing Nonlinear Dynamic Stochastic Models Easily"
  *   Sims et al. (2003), "Calculating and Using Second-Order Accurate Solutions ..."
  *   Giordani & Soderlind (2003), "Solution of Macromodels with Hansen-Sargent
                                   Robust Policies"

II. SEARCH AND MATCHING (5 lectures)

Jan. 27   –   **McCall's Job Search Model**
Ljungqvist & Sargent, Chpt. 5 (pgs. 81-94)

Jan. 29   –   **Ljungqvist and Sargent's Model of European Unemployment**
  *   Ljungqvist and Sargent (1998), "The European Unemployment Dilemma"

Feb. 3 – **The Mortensen-Pissarides Matching Model**
Ljungqvist & Sargent, Chpt. 19 (pgs. 575-587)
* Shimer (2003), "The Cyclical Behavior of Equilibrium Unemployment and Vacancies"
* Lagos (2000), "An Alternative Approach to Search Frictions"
Problem Set 1 due

Feb. 5 – **Competitive Search Equilibria**
Ljungqvist & Sargent, Chpt. 19 (pgs. 569-574, 588-589)
* Moen (1997), "Competitive Search Equilibrium"

Feb. 10 – **Search Models of Money**
Ljungqvist & Sargent, Chpt. 19 (pgs. 602-610)
* Rupert et al. (2000), "The Search-Theoretic Approach to Monetary Economics"

III. THE COMPLETE MARKETS BENCHMARK (1 lecture)

Feb. 12 – **Competitive Equilibrium with Complete Markets**
Ljungqvist & Sargent, Chpt. 7 (pgs. 143-158)

Feb. 17 – **No Class (Spring Break)**

IV. OVERLAPPING GENERATIONS MODELS (2 lectures)

Feb. 19 – **The Basic OLG Model**
Ljungqvist & Sargent, Chpt. 8 (pgs. 173-186)
Problem Set 2 due

Feb. 24 – **Applications of OLG Models**
Ljungqvist & Sargent, Chpt. 8 (pgs. 186-206)

V. ASSET PRICING (2 lectures)

Feb. 26 – **Euler Equations and Martingale Measures**
Ljungqvist & Sargent, Chpt. 10 (pgs. 229-260)
* Lucas (1978), "Asset Prices in an Exchange Economy"

March 2 **Midterm Exam**

March 4 **Hansen-Jagannathan Bounds and the Equity Premium Puzzle**
Ljungqvist & Sargent, Chpt. 10 (pgs. 260-276)
* Hansen & Jagannathan (1991), "Implications of Security Market Data ..."
* Constantinides & Duffie (1996), "Asset Pricing with Heterogeneous Consumers"
* Brav et al. (2002), "Asset Pricing with Heterogeneous Consumers and Limited ..."

VI. INCOMPLETE MARKETS (5 lectures)

March. 9 – **Self-Insurance**
Ljungqvist & Sargent, Chpt. 13
* Chamberlain & Wilson (2000), "Optimal Intertemporal Consumption under ..."

March 11   –   **Competitive Equilibrium with Exogenously Incomplete Markets**
Ljungqvist & Sargent, Chpt. 14 (pgs. 361-378)
*   Aiyagari (1994), "Uninsured Idiosyncratic Risk and Aggregate Saving"

March 16   –   **Applications of Incomplete Markets**
Ljungqvist & Sargent, Chpt. 14 (pgs. 379-397)
*   Krusell & Smith (1998), "Income and Wealth Heterogeneity in the Macroeconomy"

March 18   –   **Incentives and Commitment: Endogenously Incomplete Markets**
Ljungqvist & Sargent, Chpt. 15 (pgs. 401-427)
*   Lucas (1992), "On Efficiency and Distribution"
*   Kocherlakota (1996), "Implications of Efficient Risk-Sharing without Commitment"
*   Cole & Kocherlakota (2001), "Efficient Allocations with Hidden Income and ..."
*   Krueger & Uhlig (2003), "Competitive Risk-Sharing Contracts with One-Sided Commitm
*   Marcet & Marimon (1998), "Recursive Contracts"
*   Taub (1990), "Equivalence of Lending Equilibria and Signalling-Based Insurance ..."

March 23   –   **Applications**
Ljungqvist & Sargent, Chpt. 15 (pgs. 427-449)
*   Hopenhayn & Nicolini (1997), "Optimal Unemployment Insurance"
*   Atkeson (1991), "International Lending with Moral Hazard and Risk of Repudiation"
*   Bond & Park (2003), "Gradualism in Trade Agreements with Asymmetric Countries"
*   Kehoe & Perri (2002), "International Business Cycles with Endogenous Incomplete ..."
*   Alvarez & Jermann (2001), "Efficiency, Equilibrium, and Asset Pricing ..."
*   Albanesi & Sleet (2003), "Dynamic Optimal Taxation with Private Information"
Problem Set 3 due

VII. CREDIBLE GOVERNMENT POLICIES (2 lectures)

March 25   –   **Recursive Approaches to Reputation**
Ljungqvist & Sargent, Chpt. 16 (pgs. 453-470)

March 30   –   **Examples**
Ljungqvist & Sargent, Chpt. 16 (pgs. 470-488)
*   Albanesi et al. (2003), "How Severe is the Time-Inconsistency Problem ...?"
*   Chang (1998), "Credible Monetary Policy in an Infinite Horizon Model: ..."
*   Judd et al. (2003), "Computing Supergame Equilibria"

VIII. MONETARY AND FISCAL THEORIES OF INFLATION (2 lectures)

April 1   –   **Ten Monetary Doctrines**
Ljungqvist & Sargent, Chpt. 17 (pgs. 493-509)

April 6   –   **The Friedman Rule**
Ljungqvist & Sargent, Chpt. 17 (pgs. 509-515)

April 8-16   –   **FINAL EXAM (exact date not yet decided)**
Term Paper and Problem Set 4 due