1. **Subject information**

   **Lecture time and location**
   Wednesday, 12pm-1:30pm, Alan Gilbert 109 (Theatre 2)
   Thursday, 11am – 12:30pm, Spot 1022

   **Tutorial time and location**
   Monday 6:15pm-7:15pm, Alan Gilbert 101
   Tuesday 3:15pm-4:15pm, Spot 2019
   Thursday 9am-10am, Spot 2020

   **Course coordinator**
   Kei Kawakami
   Email: keik@unimelb.edu.au
   
   *** Please include “Econ 90003” in the subject line when you send me an email about the course, so that I can respond to it in a timely fashion. Office hours: Thursday, 8:30am-10:50am, Econ department 334

   **Tutor**
   Mousavi Seyedomid (Omid)
   Email: mousavis@student.unimelb.edu.au

   **Prerequisites**
   A major sequence in economics will normally be required before this subject is taken. Completion of 100 points in the Master of Economics.

   **Credit points**: 12.5
   **Level**: 9 (graduate/postgraduate)

2. **Assessment**
   50%: 3 hour final examination.
   30%: A mid-semester examination. (April 15th)
   20%: Assignments during the semester.

3. **Textbook**
   Lecture notes will be made available.

   **Other references**

*** Additional reading will be given as the course progresses.

4. Course outline

This is an advanced course in macroeconomic theory, with the intention of introducing students to standard concepts and techniques in macroeconomics.

Upon successful completion of the course, students should be able to:
(i) apply basic dynamic techniques to macroeconomic models in order to solve for short-run and long-run outcomes;
(ii) apply the techniques of dynamic optimization to solve macroeconomic problems including, in particular, to solve the intertemporal problem of the representative firm and the consumer;
(iii) assess the empirical implication of various theoretical models.

Subject topics
1. Introduction.
2. Dynamic programming.
   (1) Deterministic environment.
   (2) Stochastic environment.
3. Complete v.s. incomplete market.
   (1) Complete markets.
   (2) Incomplete market models.
4. Applications.
   (1) Asset pricing.
   (2) Business cycles.


**Topic 1.  Introduction to Modern Macroeconomics**

- Issues and methodology.
- Equilibrium and efficiency.
- 1st and 2nd welfare theorems.
- Constrained efficiency and public policy.

**Recommended reading**

- Stokey & Lucas, Ch. 1,2.
- Ljungqvist & Sargent, Ch. 1.

**Supplementary reading:**

- Stokey & Lucas, Ch. 1,2.
- Ljungqvist & Sargent, Ch. 1.

**Topic 2.  Dynamic Programming**

(1) Deterministic environment

- Bellman equation.
- Contraction mapping theorem, Blackwell’s sufficient conditions.
- Theorem of the maximum, the principal of optimality, “Corollary 1”.
- Euler equation, transversality condition, steady state.
- Decentralization, recursive competitive equilibrium.
- Balanced growth path, calibration.

**Recommended reading**

- Stokey & Lucas, Ch. 3,4 & 15.
- Ljungqvist & Sargent, Ch. 3-5 & 12,15.

**Supplementary reading:**

- Stokey & Lucas, Ch. 3,4 & 15.
- Ljungqvist & Sargent, Ch. 3-5 & 12,15.

(2) Stochastic environment

- Uncertainty and probability.
- Markov process, invariant distribution, ergodic set, induced state space.
- Continuous state space.
- Solving RBC models.

**Recommended reading**

- Stokey & Lucas, Ch. 7-9.
- Ljungqvist & Sargent, Ch. 2-4, 7.

**Supplementary reading:**
Campbell (1994) JME.

**Topic 3. Complete v.s. incomplete markets**

(1) Complete markets
(2) Incomplete markets: saving problem

**Recommended reading**
Ljungqvist & Sargent, Ch. 8,12 & 17,18.

**Topic 4. Applications**

(1) Asset pricing
   · Equity premium puzzle.
   · Risk-free rate puzzle.

**Recommended reading**
Ljungqvist & Sargent, Ch.13,14.
Kocherlakota (1996) JEL.

(2) Business cycles
   · Business cycle co-movements.
   · International business cycles.
   · Asymmetric business cycles.

**Recommended reading**
Backus & Kehoe (1992) AER.
Basu (1996) QJE.
Burnside, Eichenbaum, and Rebelo (1996) EER.
### 5. Lecture schedule

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SL: Stokey and Lucas  
LS: Ljungqvist and Sargent, 3rd edition (white book)

Kei Kawakami  
Updated March 20, 2015