

THE UNIVERSITY OF
NEW SOUTH WALES



School of Economics

ECON 6102
ADVANCED MACROECONOMIC ANALYSIS

Course Outline
Session 2, 2009

TABLE OF CONTENTS

1. STAFF CONTACT DETAILS	1
1.1 Communication with Staff	1
2. COURSE DETAILS	1
2.1 Teaching Times and Locations	1
2.2 Units of Credit	1
2.3 Summary of Course	1
2.4 Course Aims and Relationship to Other Courses	2
2.5 Student Learning Outcomes	2
3. LEARNING AND TEACHING ACTIVITIES	2
3.1 Approach to Learning and Teaching in the Course	2
3.2 Learning Activities and Teaching Strategies	3
4. ASSESSMENT	3
4.1 Formal Requirements	3
4.2 Assessment Details	3
5. ACADEMIC HONESTY AND PLAGIARISM	4
6. COURSE RESOURCES	4
7. COURSE EVALUATION AND DEVELOPMENT	5
8. STUDENT RESPONSIBILITIES AND CONDUCT	5
8.1 Workload	5
8.2 Attendance	5
8.3 Special Consideration and Supplementary Examinations	5
8.4 General Conduct and Behaviour	6
8.5 Occupational Health and Safety	6
8.6 Keeping Informed	6
9. ADDITIONAL STUDENT RESOURCES AND SUPPORT	6
10. COURSE SCHEDULE	7

1. STAFF CONTACT DETAILS

The Lecturers for this course are:

Sang-Wook (Stanley) Cho (Lecture-in-charge)
Lecturer: Weeks 1-6
Room 439 ASB Building
Phone No: 9385 3287
Email: s.cho@unsw.edu.au
Consultation Times – Mon. 1-4pm (or by appointment)

Alexandre Dmitriev
Lecturer: Weeks 7-12
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Consultation Times – TBA (or by appointment)

1.1 Communication with Staff

Email is the recommended means of initial communication with the teaching staff for this course. The lecturers will hold regular office hours starting Week 2. You should feel free to approach your lecturer about any academic matter. The information concerning administrative matters may also be obtained from the School of Economics Office, level 4, ASB building.

2. COURSE DETAILS

2.1 Teaching Times and Locations

Lectures: Monday 17:00-20:00 Rupert Myers Theatre (K-M15-G90)
Classes will be held from Weeks 1-10, and 12-13. (Week 11 class is a public holiday.)

2.2 Units of Credit

Units of Credit: 6
Contact Hours per Week: 3

2.3 Summary of Course

The first part of the course will deal mainly with dynamic general equilibrium models further extending the basic models learned in ECON 6002. Overlapping generation models with production, endogenous growth models, models with uncertainty and heterogeneous agent models will be introduced and analyzed in the class. In addition, we will computationally solve for one sector growth models using Matlab. In each topic and models introduced, we will emphasize on the basic structure of these models and their applications.

The second part of the course will start with describing the basic setting for studying risk-sharing and asset pricing: the competitive equilibrium for a pure exchange infinite horizon economy with stochastic Markov endowments. We will use this environment to discuss some key ideas in general equilibrium asset pricing will particular emphasis on the celebrated equity premium puzzle. Then we will introduce a powerful tool for solving dynamic stochastic general equilibrium models numerically: the parameterized expectation approach. Finally, we will deviate from the complete market setting and examine the consequences of endogenously incomplete market on growth and development pattern.

2.4 Course Aims and Relationship to Other Courses

The course aims to provide benefits to students in terms of:

- The ability to use advanced economic tools in addressing economic policy questions;
- An understanding of the different ways in which economic policy issues can be tackled and the way in which economic policies affect economic performance;

This course is a 2nd part of the graduate course on advanced macroeconomics. It will build on the material that was taught in macroeconomic analysis (ECON6002). You must have completed ECON6002 with satisfactory grades or have completed equivalent course material.

2.5 Student Learning Outcomes

On completion of the course, students should be able to:

- Identify and explain the assumptions and structure of standard models in macroeconomics
- Analyze and critically manipulate these models
- Apply the models to interpret and analyze problems in macroeconomics
- Recognize and assess numerical tools to solve rational expectation models and analyse their quantitative prediction

Graduate Attributes

This course contributes to your development of the following Australian School of Business Graduate Attributes, which are the qualities, skills and understandings we want you to have by the completion of your degree.

Course Learning Outcomes	ASB Graduate Attributes
1,2,3,4	1. Critical thinking and problem solving
1,2,3,4	2. Communication
NA	3. Teamwork and leadership
1,2,3,4	4. Social, ethical and global perspectives
1,2,3,4	5. In-depth engagement with relevant disciplinary knowledge
1,2,3,4	6. Professional skills

3. LEARNING AND TEACHING ACTIVITIES

3.1 Approach to Learning and Teaching in the Course

The lectures, tutorials and assessment have been designed to challenge students and support the achievement of the desired learning outcomes. The course is designed to encourage a climate of inquiry and dialogue between students and teachers and among students (in and out of class). The lecturers and tutors aim to provide meaningful and timely feedback to students to improve learning outcomes. More broadly, the philosophy underpinning this course and its Teaching and Learning Strategies (see 3.3 below) are based on “Guidelines on Learning that Inform Teaching at UNSW. These guidelines may be viewed at: www.guidelinesonlearning.unsw.edu.au.

An effective learning strategy (on which the course materials are based) is the following:

1. Prior to attending a lecture, download the lecture notes, read them and the relevant material from the textbook, bring the notes with you to the lecture.
2. Attend the lecture. The relevant material from the textbook forms the basis for the lecture. Key concepts will be emphasised and demonstrated through worked examples.
3. Prior to attending tutorials, attempt the assigned questions for that week. Do not be discouraged if you cannot answer all of the questions as some questions are more difficult than others. Attempting the assigned tutorial questions will provide a self-test of your understanding of particular topics and identify those topics which may require further attention. Tutors will work through the assigned tutorial questions each week.

3.2 Learning Activities and Teaching Strategies

The examinable content of the course is defined by the material covered in lectures, tutorials and problem sets.

Lectures

The purpose of lectures is to provide a logical structure for the topics that make up the course, to emphasise the important concepts and methods of each topic, and to provide relevant examples to which the concepts and methods are applied. As not all topics will be presented extensively, students should refer to the textbook for further details and be sure to attempt the tutorial exercises.

Tutorials

The object of the tutorials is to discuss various approaches to, and issues associated with the assigned exercises and topics covered in the course. Tutorial will also be used to administer short tests throughout the session. These tests will contribute to monitoring student progress as well as provide students with feedback on their learning.

Out-of-Class Study

While students may have preferred individual learning strategies, it is important to note that most learning will be achieved outside of class time. Lectures can only provide a structure to assist your study, and tutorial time is limited.

4. ASSESSMENT

4.1 Formal Requirements

In order to pass this course, you must:

- achieve a composite mark of at least 50 out of a maximum of 100.

4.2 Assessment Details

Assessment Task	Weighting	Learning Outcomes assessed	ASB Graduate Attributes assessed	Length	Due Date
Assignments	30%	1,2,3,4	1,2,6		See Below
Mid-Session Exam	35%	1,2,3,4	1,2,6	2 hours	Week 7
Final Exam	35%	1,2,3,4	1,2,6	2 hours	University Exam Period

Tutorial Assessments/Tests

Students will be given various assignments including computer simulation projects and class presentations. For each assignment, students will be given at least two weeks to complete and submit their final output. In the tutorial sessions, we will go over the assignments. Students may be asked to present their assignments during the tutorial.

Mid-Session Examination

The mid-session exam will be held either during the lecture time in Week 7 or will be taken separately in an extra class time. All students are expected to attempt the mid-session exam. The location and exact time of the mid-session will be announced in lectures.

The mid-session examination will be 2 hours in duration, and will be entirely based on the first part of the subject.

Note: There will be no supplementary exam offered for the Mid-Session Examination. Students who fail to attend the Mid-session Examination will need to apply for Special Consideration.

Those students whose request is granted for Special Consideration for the mid-session examination, will have their final mark re-weighted according to the weight of the missed piece of assessment.

The final examination

Final exam will be held in the University examination period (November) and will be at least 2 hours long. It will concern the second half of the course.

Further information on the content of the Final Exam will be provided towards the end of session. The examination period for Semester 2, 2009, falls between **30 October and 17 November**.

5. ACADEMIC HONESTY AND PLAGIARISM

The University regards plagiarism as a form of academic misconduct, and has very strict rules regarding plagiarism. For UNSW's policies, penalties, and information to help you avoid plagiarism see: <http://www.lc.unsw.edu.au/plagiarism/index.html> as well as the guidelines in the online ELISE tutorial for all new UNSW students: <http://info.library.unsw.edu.au/skills/tutorials/InfoSkills/index.htm>.

6. COURSE RESOURCES

There is no prescribed textbook for this course. Students may find the following graduate textbooks useful for some parts of the course.

- Lars Ljungqvist and Thomas J. Sargent, *Recursive Macroeconomics Theory*, 2nd edition, The MIT Press (2000)
- Nancy L. Stokey and Robert E. Lucas, with Edward C. Prescott, *Recursive Methods in Economic Dynamics*, Harvard University Press (1989)
- Thomas Cooley, *Frontiers of Business Cycle Research*, Princeton University Press (1995)
- Jerome Adda and Russell Cooper, *Dynamic Economics*, The MIT Press (2003)
- Burckhard Heer and Alfred Maussner, *Dynamic General Equilibrium Modelling*, Springer (2005)

Additional materials such as solutions to the tutorial exercises, lecture notes, sample tests, etc. will be provided through WebCT. The course website can be accessed at the following address: <http://vista.elearning.unsw.edu.au>

7. COURSE EVALUATION AND DEVELOPMENT

Each year feedback is sought from students and other stakeholders about the courses offered in the School and continual improvements are made based on this feedback. UNSW's Course and Teaching Evaluation and Improvement (CATEI) Process is one of the ways in which student evaluative feedback is gathered. Based on previous comments by students we are providing students with more opportunities to practice their problem solving skills.

8. STUDENT RESPONSIBILITIES AND CONDUCT

Students are expected to be familiar with and adhere to university policies in relation to class attendance and general conduct and behaviour, including maintaining a safe, respectful environment; and to understand their obligations in relation to workload, assessment and keeping informed.

Information and policies on these topics can be found in the 'A-Z Student Guide': <https://my.unsw.edu.au/student/atoz/ABC.html>. See, especially, information on 'Attendance and Absence', 'Academic Misconduct', 'Assessment Information', 'Examinations', 'Special Consideration', 'Student Responsibilities', 'Workload' and policies such as 'Occupational Health and Safety'.

8.1 Workload

It is expected that you will spend at least **ten hours** per week studying this course. This time should be made up of reading, research, working on exercises and problems, and attending classes. In periods where you need to complete assignments or prepare for examinations, the workload may be greater.

Over-commitment has been a cause of failure for many students. You should take the required workload into account when planning how to balance study with employment and other activities.

8.2 Attendance

Your regular and punctual attendance at lectures and seminars is expected in this course. University regulations indicate that if students attend less than eighty per cent of scheduled classes they may be refused final assessment.

8.3 Special Consideration and Supplementary Examinations

UNSW Policy and Process for Special Consideration

(see <https://my.unsw.edu.au/student/atoz/SpecialConsideration.html>)

- Applications for special consideration (including supplementary examinations) must go through UNSW Central administration (within 3 working days of the assessment to which it refers) – applications will **not** be accepted by teaching staff;
- Applying for special consideration does not automatically mean that you will be granted additional assessment or that you will be awarded an amended result;
- If you are making an application for special consideration (through UNSW Central Administration) please notify your Lecturer in Charge;

- Please note that a register of applications for Special Consideration is maintained. History of previous applications for Special Consideration is taken into account when considering each case.

8.4 General Conduct and Behaviour

You are expected to conduct yourself with consideration and respect for the needs of your fellow students and teaching staff. Conduct which unduly disrupts or interferes with a class, such as ringing or talking on mobile phones, is not acceptable and students may be asked to leave the class. More information on student conduct is available at: www.my.unsw.edu.au

8.5 Occupational Health and Safety

UNSW Policy requires each person to work safely and responsibly, in order to avoid personal injury and to protect the safety of others. For more information, see <https://my.unsw.edu.au/student/atoz/OccupationalHealth.html>.

8.6 Keeping Informed

You should take note of all announcements made in lectures, tutorials or on the course web site. From time to time, the University will send important announcements to your university e-mail address without providing you with a paper copy. You will be deemed to have received this information. It is also your responsibility to keep the University informed of all changes to your contact details.

9. ADDITIONAL STUDENT RESOURCES AND SUPPORT

The University and the ASB provide a wide range of support services for students, including:

- **ASB Education Development Unit (EDU)** (www.business.unsw.edu.au/edu)
Academic writing, study skills and maths support specifically for ASB students. Services include workshops, online and printed resources, and individual consultations. EDU Office: Room GO7, Ground Floor, ASB Building (opposite Student Centre); Ph: 9385 5584; Email: edu@unsw.edu.au
- **UNSW Learning Centre** (www.lc.unsw.edu.au)
Academic skills support services, including workshops and resources, for all UNSW students. See website for details.
- **Library training and search support services:** <http://info.library.unsw.edu.au>
- **UNSW IT Service Desk:** Technical support for problems logging in to websites, downloading documents etc. Library, Level 2; Ph: 9385 1333.
Website: www.its.unsw.edu.au/support/support_home.html
- **UNSW Counselling Service** (<http://www.counselling.unsw.edu.au>)
Free, confidential service for problems of a personal or academic nature; and workshops on study issues such as 'Coping With Stress' and 'Procrastination'.
Office: Level 2, Quadrangle East Wing ; Ph: 9385 5418
- **Student Equity & Disabilities Unit** (<http://www.studentequity.unsw.edu.au>)
Advice regarding equity and diversity issues, and support for students who have a disability or disadvantage that interferes with their learning. Office: Ground Floor, John Goodsell Building; Ph: 9385 4734

10. COURSE SCHEDULE

Week 1: Extensions on Overlapping Generations Model

1. Lecture notes
2. Samuelson, P.A. (1958): "An Exact Consumption Loan Model of Interest, With or Without the Social Contrivance of Money," *Journal of Political Economy*, 66, 467-482.
3. Barro, R. (1974): "Are Government Bonds Net Wealth?" *Journal of Political Economy*, 82, 1095-1117.
4. Diamond, P. (1965): "National Debt in a Neo-Classical Growth Model," *American Economic Review*, 55, 1126-1150.
5. Ljungqvist and Sargent, Chapter 9-10

Week 2-3: Endogenous Growth and Government Policies– AK models

1. Lecture notes
2. Lucas, Robert E., Jr., (1988), "On the Mechanics of Economic Development," *Journal of Monetary Economics*, 22, 3-42.
3. Jones, Larry E. and Rodolfo E. Manuelli, (1992), "Finite Lifetimes and Growth," *Journal of Economic Theory*, Vol. 58, No. 2, 171-197.
4. Jones, Larry E. and Rodolfo E. Manuelli, (1990), "A Convex Model of Equilibrium Growth: Theory and Policy Implications," *Journal of Political Economy*, 98, 1008-1038.
6. Jones, L. E., R. E. Manuelli and P. E. Rossi, "Optimal Taxation in Models of Endogenous Growth," *Journal of Political Economy*, Vol. 101, No. 3, (1993), 485-517.
7. McGrattan, Ellen R., (1998), "A Defense of AK Growth Models," *Federal Reserve Bank of Minneapolis Quarterly Review*, Vol. 22, No.4, 13-27.
8. King, Robert G. and Rebelo, Sergio (1990), "Public policy and economic growth: Developing Neoclassical Implications", *Journal of Political Economy* 98, Part 2, 126-150
9. Rebelo, Sergio (1991), "Long-run policy analysis and long-run growth". *Journal of Political Economy* 99(june), 500-21.
10. Stokey, Nancy and Rebelo, Sergio (1995), "Growth effects of flat-rate taxes," *Journal of Political Economy*, 103(june), 519-50.

Week 4-5: Dynamic General Equilibrium Modelling – Computational Approach using Matlab

1. Lecture notes
2. Adda and Cooper, Chapter 5
3. Heer and Maussner, Chapter 1

Week 6: Models with Heterogeneous Agents and Wealth Inequality

1. Lecture notes
2. Cooley, Chapter 4.
3. Cagetti, M. and M. De Nardi, (2005), "Wealth inequality: data and models," *Federal Reserve Bank of Chicago*, WP2005-10.
4. José-Víctor Ríos-Rull et al, (2002), "Updated Facts on the U.S. Distributions of Earnings, Income, and Wealth", *Federal Reserve Bank of Minneapolis Quarterly Review*, Summer 2002, Vol. 26, No. 3, pp. 2–35
5. José-Víctor Ríos-Rull et al, (2003), "Accounting for earnings and wealth inequality," *Journal of Political Economy*, Vol. 111, No. 4, pp. 818-857
6. Papers by Mark Huggett available at <http://www9.georgetown.edu/faculty/mh5/research/>
7. Papers by Christina De Nardi available at <http://www.nber.org/~denardim/research/research.html>

Week 7. Preliminaries: Modelling Uncertainty, Competitive Equilibrium with Complete Markets

1. Lecture Notes
2. Sargent and Ljungqvist (2000) Chapter 7 "Competitive Equilibrium with Complete Markets"

Weeks 8-9: A Primer on Asset Pricing: the Lucas tree model; the Equity premium puzzle; the risk free rate puzzle.

1. Lecture Notes
2. Cochrane, John H. (2005) *Asset Pricing*, revised ed. (Princeton, NJ and Oxford, UK: Princeton University Press). Chapter 1 and 2.
3. Lucas, Robert E. (1978) "Asset Prices in an Exchange Economy", *Econometrica* 46(6), 1429–45
4. Kocherlakota, Narayana R. (1996) "The Equity Premium: It's Still a Puzzle," *Journal of Economic Literature*, vol. 34(1), 42-71.
5. Mehra, Rajnish (2003) "The Equity Premium: Why Is It a Puzzle?" *Financial Analysts Journal*, January/February 2003, 54-69.
6. Mehra, R. and E. Prescott (2008) "The Equity Premium: ABCs" in Merha, R. and E. Prescott (eds.) *Handbook of the Equity Risk Premium*.

Weeks 9-10. Nonlinear Methods for Solving Stochastic Dynamic Economies: Parameterized Expectations Approach

1. Lecture Notes
2. Heer and Maussner (2005) Chapter 3
3. Marcet and G. Lorenzoni, (1999) "The Parameterized Expectation Approach: Some Practical Issues." in: R. Marimon and A. Scott, Editors, *Computational Methods for Study of Dynamic Economies*, Oxford University Press, New York, pp. 143–171.
4. Den Haan, Wouter J & Marcet, Albert, (1990) "Solving the Stochastic Growth Model by Parameterized Expectations", *Journal of Business & Economic Statistics*, Vol.8, 31-34.
5. Den Haan, Wouter J & Marcet, Albert (1994) "Accuracy in Simulations," *Review of Economic Studies*, vol. 61(1), 3-17.
6. Duffy, J. and P. D. McNelis, (2001) "Approximating and Simulating the Stochastic Growth model: Parameterized Expectations, Neural Networks, and the Genetic Algorithm" *Journal of Economic Dynamics & Control*, Vol.25, 1273–1303.
7. Maliar, L. and S. Maliar, (2003) 'Parameterized Expectations Algorithm and the Moving Bounds', *Journal of Business & Economic Statistics*, Vol.21, No.1, 88-92.

Week 11-12. Some Aggregate Consequences of Market Incompleteness: Finance and Growth; International Business Cycles

1. Lecture Notes
2. Acemoglu, Daron & Zilibotti, Fabrizio (1997) "Was Prometheus Unbound by Chance? Risk, Diversification, and Growth," *Journal of Political Economy*, vol. 105(4), 709-51.
3. Cooley (1995) Chapters 1 and 10.
4. Backus, David K; Kehoe, Patrick J and Kydland, Finn E. "International Real Business Cycles." *Journal of Political Economy*, 1992, 100(4), pp. 745-75.
5. Patrick J. Kehoe & Fabrizio Perri, (2002) "International Business Cycles with Endogenous Incomplete Markets," *Econometrica*, 70(3), pp. 907-928.
6. Crucini, Mario (2006) "International Real Business Cycles." Vanderbilt Economics Working Paper No. 06-W17
Maliar, Lilia and Serguei Maliar (2007), "Comparing Numerical Solutions of Models with Heterogeneous Agents (Problem A): A Simulation-Based Parameterized Expectations Algorithm", prepared for a special issue of JEDC on comparing numerical solutions of heterogeneous agents models.