UNSW Course Outline

ECON7102 Macroeconomic Theory II - 2024

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General Course Information

Course Code : ECON7102
Year : 2024
Term : Term 3
Teaching Period : T3
Is a multi-term course? : No
Faculty : UNSW Business School
Academic Unit : School of Economics
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Postgraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

This course is an introduction into solving and analyzing macroeconomic models. The course begins with linearization techniques and perturbation. We then move on to covering non-linear approximations of model solutions. In addition to solving macroeconomic models, students will

also learn how to parameterize them. Towards this end, we discuss not only calibration, but also the basics of estimation such as the Kalman filter and Maximum Likelihood estimation. Finally, the course also provides a glimpse at models with heterogeneous agents. Throughout the course we will discuss how our macroeconomic models can be used for economic (policy) analysis.

Course Aims

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 the 2nd part of the graduate course on advanced macroeconomics. It will build on the material that was taught in ECON7002. You must have completed ECON7002 with satisfactory grades or have completed equivalent course material.

Relationship to Other Courses

This course is the 2nd part of the graduate course on advanced macroeconomics. It will build on the material that was taught in ECON7002. You must have completed ECON7002 with satisfactory grades or have completed equivalent course material.

Course Learning Outcomes

Course Learning Outcomes	Program learning outcomes
CLO1 : Identify and explain the assumptions and structure of standard models in macroeconomics.	• PLO1 : Business Knowledge • PLO2 : Problem Solving
CLO2 : Analyse and critically manipulate standard models in macroeconomics.	• PLO1 : Business Knowledge • PLO2 : Problem Solving
CLO3 : Apply the models to interpret and analyse problems in macroeconomics.	• PLO1 : Business Knowledge • PLO2 : Problem Solving
CLO4 : Select and apply numerical tools to solve rational expectation models and analyse their quantitative predictions.	• PLO1 : Business Knowledge • PLO2 : Problem Solving
CLO5 : Construct sophisticated arguments in terms of standard macroeconomic concepts and present these arguments.	• PLO1 : Business Knowledge • PLO2 : Problem Solving • PLO3 : Business Communication • PLO7 : Leadership Development

Course Learning Outcomes	Assessment Item
CLO1 : Identify and explain the assumptions and structure of standard models in macroeconomics.	• Final exam • Assignments
CLO2 : Analyse and critically manipulate standard models in macroeconomics.	• Final exam • Assignments
CLO3 : Apply the models to interpret and analyse problems in macroeconomics.	• Final exam • Assignments
CLO4 : Select and apply numerical tools to solve rational expectation models and analyse their quantitative predictions.	• Final exam • Assignments
CLO5 : Construct sophisticated arguments in terms of standard macroeconomic concepts and present these arguments.	• Final exam • Assignments

Learning and Teaching Technologies

Moodle - Learning Management System | Zoom

Learning and Teaching in this course

Approach to Learning and Teaching in the Course

The lectures and assessment have been designed to appropriately challenge students and support the achievement of the desired learning outcomes. A climate of inquiry and dialogue is encouraged between students and teachers and among students (in and out of class). The

teaching staff aim to provide meaningful and timely feedback to students to improve learning outcomes.

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

- Prior to attending a lecture, download the lecture notes, read them and the relevant material from the textbook, and bring the notes with you to the lecture.
- 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.
- Attempt the problem sets. Do not be discouraged if you cannot answer all of the questions, as some questions are more difficult than others. Attempting the assigned questions will provide a self-test of your understanding of particular topics and identify those topics which may require further attention.
- Participate in online activities (online local and international seminars - details will be provided in Lecture 1)

Understanding and using economic models are key in economic analysis and in undertaking research in economics. The best way to gain a deep understanding of these models is by working through the models yourself using a pen and paper. Look at the equations and write them out (or draw the diagrams). Note what variables enter into the models and make sure you can provide an intuitive explanation as to why they are there. Think about the assumptions used in the model and ask why they are used. Look at how the model is solved and then look at the solution and see if it makes economic sense. In some cases, you will should work through the data and convince yourself that the model is an appropriate specification. It usually takes time to build up these skills so it is good practice to begin early in the term and do a little at a time. In the lectures we will work through important models, and the numerous problem sets will give you practice at working with and solving economic models and help you to acquire the necessary skills.

Learning Activities and Teaching Strategies

The examinable content of the course is defined by the references given in the lecture schedule, the content of lectures, and the content covered in web-based learning.

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.

Lectures will be delivered face-to-face.

Seminars

Seminars will be delivered face-to-face.

Web-based Learning

Web-based learning is an integral part of this course. Presentations, discussions, and problems that occur on the web-based learning platform will build on the material discussed in class with the lecturer.

Out-of-Class Study

Most learning will be achieved outside of class time. Lectures can only provide a structure to assist your study, and in-class time is limited.

An "ideal" strategy (on which the provision of the course materials is based) might include:

- Reading of the relevant chapter(s) of the text and any readings before the lecture. This will give you a general idea of the topic area.
- Attending lectures. The context, importance, and relevance of course material is identified and clarified here.
- Participating in web-based learning.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Final exam Assessment Format: Individual	40%	Start Date: University exam period Due Date: University exam period
Assignments Assessment Format: Individual	60%	Start Date: weeks 4,7,9 Due Date: weeks 6,8,10

Assessment Details

Final exam

Assessment Overview

The final examination will test all materials covered in the course.

Further information on the content of the final exam will be provided towards the end of term. The purpose of the final examination is to assess knowledge of basic macroeconomic concepts and theory covered throughout the entire term.

Course Learning Outcomes

- CLO1 : Identify and explain the assumptions and structure of standard models in macroeconomics.
- CLO2 : Analyse and critically manipulate standard models in macroeconomics.
- CLO3 : Apply the models to interpret and analyse problems in macroeconomics.
- CLO4 : Select and apply numerical tools to solve rational expectation models and analyse their quantitative predictions.
- CLO5 : Construct sophisticated arguments in terms of standard macroeconomic concepts and present these arguments.

Detailed Assessment Description

(*)This course will have an invigilated exam held on UNSW's Kensington campus. It is a mandatory requirement that you attend the exam on-campus.

Assessment Length

2h

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see here.

Assignments

Assessment Overview

There will be 3 assignments, the first of which will be larger (worth 30%) the remaining two smaller (worth 15% each). All assignments will be based on the material covered in lectures. They are designed to provide students with practice in the skills necessary to analyse and solve economic models.

Collaboration among classmates is encouraged, but students must acknowledge any help

received from other students. Failure to acknowledge outside assistance you have received will be considered plagiarism. All students must submit their own assignments.

Course Learning Outcomes

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General Assessment Information

Students will receive early feedback on their progress from the lecturer within the first 3 weeks.

Grading Basis

Standard

Requirements to pass course

In order to pass this course students must:

• Achieve a composite mark of at least 50 out of 100

• Engage actively in course learning activities and attempt all assessment requirements

• Meet any additional requirements specified in the assessment details

• Meet the specified attendance requirements of the course (see Schedule section)

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 0 : 2 September - 8 September	Reading	
Week 1 : 9 September - 15 September	Lecture	Introduction, dynamic programming and value function integration. Introduction into Perturbation. Lecture notes
Week 2 : 16 September - 22 September	Blended	First and higher-order pertrubation and introduction into Dynare Lecture notes Lecture + seminar
Week 3 : 23 September - 29 September	Lecture	Function approximation, numerical integration and sovling models with projection methods Lecture notes
Week 4 : 30 September - 6 October	Blended	Introduction into model parameterization, Kalman filter and maximum likelihood Lecture notes; Ljungqvist and Sargent, Ch. 5 Lecture + seminar Assignment 1 - Solving DSGE model with perturbation, to be due in Week 6, 18 October 17:00.
Week 5 : 7 October - 13 October	Assessment	work on assignment 1
Week 6 : 14 October - 20 October	Blended	Introduction into Bayesian estimation Lecture notes Lecture + seminar
Week 7 : 21 October - 27 October	Lecture	Introduction into solving heterogeneous agent models without aggregate uncertainty Lecture notes Assignment 2 - Solving DSGE model with projection methods, to be due in Week 8, 1 November 17:00
Week 8 : 28 October - 3 November	Blended	Introduction into solving heterogeneous agent models with aggregate uncertainty, Krusell-Smith algorithm Lecture notes Lecture + seminar
Week 9 : 4 November - 10 November	Lecture	Alternative methods of solving heterogeneous agent models Lecture notes Assignment 3 - Estimating a time-series model using the Kalman filter and maximum likelihood, to be due in week 10, 15 November 17:00
Week 10 : 11 November - 17 November	Blended	office hour seminar

Attendance Requirements

Please note that lecture recordings are not available for this course. Students are strongly encouraged to attend all classes and contact the Course Authority to make alternative arrangements for classes missed.

Course Resources

Prescribed Resources

The website for this course is on UNSW Moodle.

Additional materials such as solutions to the tutorial exercises, lecture notes, slides, and other materials. will be provided through the course website on UNSW Moodle.

There is no prescribed textbook for the course. Assigned readings are taken from some of the following texts (available in the UNSW Library):

Lars Ljungqvist and Thomas J. Sargent, Recursive Macroeconomics Theory, 2nd edition, The MIT Press (2004) (3rd edition is also available)

- 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)
- Keneth Judd, Numerical Methods in Economics, The MIT Press (1999)

Course Evaluation and Development

Feedback is regularly sought from students and continual improvements are made based on this feedback. At the end of this course, you will be asked to complete the myExperience survey, which provides a key source of student evaluative feedback. Your input into this quality enhancement process is extremely valuable in assisting us to meet the needs of our students and provide an effective and enriching learning experience. The results of all surveys are carefully considered and do lead to action towards enhancing educational quality.

The School of Economics strives to be responsive to student feedback. If you would like more information on how the design of this course and changes made to it over time have taken students' needs and preferences into account, please contact the Director of Education at the School of Economics.

Consent for De-Identified Data to be Used for Secondary Research into Improving Student Experience

To enhance your student experience, researchers at UNSW conduct academic research that involves the use of de-identified student data, such as assessment outcomes, course grades, course engagement and participation, etc. Students of this course are being invited to provide their consent for their de-identified data to be shared with UNSW researchers for research purposes after the course is completed.

Providing consent for your de-identified data to be used in academic research is voluntary and not doing so will not have an impact on your course grades.

Researchers who want to access your de-identified data for future research projects will need to submit individual UNSW Ethics Applications for approval before they can access your data.

A full description of the research activities aims, risks associated with these activities and how your privacy and confidentiality will be protected at all times can be found here.

If you **consent** to have your de-identified data used for academic research into improving student experience, you do not need to do anything. Your consent will be implied, and your data may be used for research in a format that will not individually identify you after the course is completed.

If you **do not consent** for this to happen, please email the opt-out form to seer@unsw.edu.au to opt-out from having your de-identified data used in this manner. If you complete the opt-out form, the information about you that was collected during this course will not be used in academic research.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Petr Sedlacek		431A		Fridays, 10-11. Email for other availability.	No	Yes

Other Useful Information

Academic Information

COURSE POLICIES AND SUPPORT

The Business School expects that you are familiar with the contents of this course outline and the UNSW and Business School learning expectations, rules, policies and support services as listed below:

- Program Learning Outcomes
- Academic Integrity and Plagiarism
- Student Responsibilities and Conduct
- Special Consideration
- Protocol for Viewing Final Exam Scripts
- Student Learning Support Services

Further information is provided on the key policies and support page.

Students may not circulate or post online any course materials such as handouts, exams, syllabi or similar resources from their courses without the written permission of their instructor.

STUDENT LEARNING OUTCOMES

The Course Learning Outcomes (CLOs) – under the Outcomes tab – are what you should be able to demonstrate by the end of this course, if you participate fully in learning activities and successfully complete the assessment items.

CLOs also contribute to your achievement of the Program Learning Outcomes (PLOs), which are developed across the duration of a program. PLOs are, in turn, directly linked to UNSW graduate capabilities. More information on Coursework PLOs is available on the key policies and support page. For PG Research PLOs, including MPDBS, please refer to the UNSW HDR Learning Outcomes.

Academic Honesty and Plagarism

As a student at UNSW you are expected to display academic integrity in your work and interactions. Where a student breaches the UNSW Student Code with respect to academic integrity, the University may take disciplinary action under the Student Misconduct Procedure. To assure academic integrity, you may be required to demonstrate reasoning, research and the process of constructing work submitted for assessment.

To assist you in understanding what academic integrity means, and how to ensure that you do comply with the UNSW Student Code, it is strongly recommended that you complete the Working with Academic Integrity module before submitting your first assessment task. It is a free, online self-paced Moodle module that should take about one hour to complete.

Submission of Assessment Tasks

SPECIAL CONSIDERATION

You can apply for special consideration when illness or other circumstances beyond your control interfere with your performance in a specific assessment task or tasks, including online exams. Students studying remotely who have exams scheduled between 10pm and 7am local time, are also able to apply for special consideration to sit a supplementary exam at a time outside of these hours.

Special consideration is primarily intended to provide you with an extra opportunity to demonstrate the level of performance of which you are capable. To apply, and for further information, see Special Consideration on the UNSW Current Students page.

Special consideration applications will be assessed centrally by the Case Review Team, who will update the online application with the outcome and add any relevant comments. The change to the status of the application immediately sends an email to the student and to the assessor with the outcome of the application.

Please note the following:

1. Applications can only be made through Online Services in myUNSW (see the UNSW Current Students page). Applications will not be accepted by teaching staff. The lecturer-in-charge/ course coordinator will be automatically notified when your application is processed.
2. Applying for special consideration does not automatically mean that you will be granted a supplementary exam or other concession.
3. If you experience illness or misadventure in the lead up to an exam or assessment, you must submit an application for special consideration, either prior to the examination taking place, or prior to the assessment submission deadline, except where illness or misadventure prevent you from doing so.
4. If your circumstances stop you from applying before your exam or assessment due date, you must apply within 3 working days of the assessment or the period covered by your supporting documentation.
5. Under the UNSW Fit To Sit/Submit rule, if you sit the exam/submit an assignment, you are declaring yourself well enough to do so and are cannot subsequently apply for special consideration.
6. If you become unwell on the day of – or during – an exam, you must stop working on your exam, advise your course coordinator or tutor and provide a medical certificate dated within 24 hours of the exam, with your special consideration application. For online exams, you must contact your course coordinator or tutor immediately via email, Moodle or chat and advise them you are unwell and submit screenshots of your conversation along with your medical certificate and application.
7. Special consideration requests do not allow the awarding of additional marks to students.

Further information on Business School policy and procedure can be found under "Special Consideration" on the key policies and support page.

LATE SUBMISSION PENALTIES

For assessments other than examinations, late submission will incur a penalty of 5% per day or part thereof (including weekends) from the due date and time. An assessment will not be

accepted after 5 days (120 hours) of the original deadline unless special consideration has been approved. An assignment is considered late if the requested format, such as hard copy or electronic copy, has not been submitted on time or where the 'wrong' assignment has been submitted.

For assessments which account for 10% or less of the overall course grade, and where answers are immediately discussed or debriefed, the LIC may stipulate a different penalty. Details of such late penalties will be available on the course Moodle page.

FEEDBACK ON YOUR ASSESSMENT TASK PERFORMANCE

Feedback on student performance from formative and summative assessment tasks will be provided to students in a timely manner. Assessment tasks completed within the teaching period of a course, other than a final assessment, will be assessed and students provided with feedback, with or without a provisional result, within 10 working days of submission, under normal circumstances. Feedback on continuous assessment tasks (e.g. laboratory and studio-based, workplace-based, weekly quizzes) will be provided prior to the midpoint of the course.

Faculty-specific Information

PROTOCOL FOR VIEWING FINAL EXAM SCRIPTS

UNSW students have the right to view their final exam scripts, subject to a small number of very specific exemptions. The UNSW Business School has set a protocol under which students may view their final exam script. Individual schools within the Faculty may also set up additional local processes for viewing final exam scripts, so it is important that you check with your School.

If you are completing courses from the following schools, please note the additional school-specific information:

- Students in the **School of Accounting, Auditing & Taxation** who wish to view their final examination script should also refer to this page.
- Students in the **School of Banking & Finance** should also refer to this page.
- Students in the **School of Information Systems & Technology Management** should also refer to this page.

COURSE EVALUATION AND DEVELOPMENT

Feedback is regularly sought from students and continual improvements are made based on this feedback. At the end of this course, you will be asked to complete the myExperience survey,

which provides a key source of student evaluative feedback. Your input into this quality enhancement process is extremely valuable in assisting us to meet the needs of our students and provide an effective and enriching learning experience. The results of all surveys are carefully considered and do lead to action towards enhancing educational quality.

QUALITY ASSURANCE

The Business School is actively monitoring student learning and quality of the student experience in all its programs. A random selection of completed assessment tasks may be used for quality assurance, such as to determine the extent to which program learning goals are being achieved. The information is required for accreditation purposes, and aggregated findings will be used to inform changes aimed at improving the quality of Business School programs. All material used for such processes will be treated as confidential.

TEACHING TIMES AND LOCATIONS

Please note that teaching times and locations are subject to change. Students are strongly advised to refer to the Class Timetable website for the most up-to-date teaching times and locations.