ECON8022/4422

Macroeconomic Theory

Mode of Delivery	On campus
Tutorial	2pm - 3pm, CBE-LT1
Seminars	3pm - 5pm, CBE-LT1
Prerequisites	As listed in *Programs and Courses*
Incompatible Courses	As listed in *Programs and Courses*
Co-taught Courses	None
Course Convener	Associate Professor Timothy Kam
Student Consultation Hours	See WATTLE
Research Interests	Macroeconomic Theory and Policy, Monetary Economics, Computational Economics
Email(s)	Use WATTLE open forum please
RSE Student Office Contact	Nicole Millar
Phone	02 612 50384
Email	enquiries.rse@anu.edu.au
RSE Students Webpage	https://www.rse.anu.edu.au/students/

Learning Management System: `http://wattle.anu.edu.au` (WATTLE)
This Outline will be superseded by its official version on WATTLE . Enrolled students should rely on the latter for policies and on WATTLE for weekly task updates. Compiled on 2018/02/02 at 17:15:50 (AEST)

SEMESTER 1
2018

COURSE OVERVIEW

Course Description

This course will introduce you to some basic aspects of modern Macro-economics. In elementary macroeconomics courses we have been exposed to the following questions: On average why is each generation of people "better off" than its predecessors? Why do some nations catch up in economic well being, while others are persistently poor? What drives poverty and inequality of living standards? What is inflation? What is unemployment? What is the business cycle? Are they socially costly? How do we logically think about what drives these measurable economic outcomes? How do banking, finance and information play a role in these outcomes? What role do economic policies play in these various economic issues? How do we think about major Recessions and economic crises? From undergraduate economics, we think we know most of the proposed answers, albeit informally. In this course, we will emphasize formal theory and modelling tools that will enable you to address major macroeonomic questions in a deeper way.

These are very big and difficult questions if one is to study them in carefully considered and quantitative ways. However, given time limitations, we will selectively study some of these questions and relevant policy issues as illustrations of more general theory and necessary tools that have to be picked up along the way. These important tools form the backbone for modern quantitative and policy research in macroeconomics that is disciplined by structured theoretical thinking. More sophisticated versions of these skillsets are now widely used in the best policy institutions around the world. They also find use in some discerning consultancies, investment banks and international organisations.

In order to analyze and understand a given macroeconomic reality, and in order to hopefully make useful predictions or policy prescriptions, we begin from basic and known logical paradigms. Once we learn how these baseline paradigms behave, we can step outside of these "boxes" to critique some of their deficiencies. We will also discuss how economists consider alternative solutions and modes of thinking. This course will be presented at a level suitable for the working professional seeking a career "tooling-up", the advanced undergraduate and graduate student. To do well in this course, you should possess an aptitude for critical/analytical thinking and an openness to learning new quantitative/computational skills. A logical progression from this course is ECON8001 Topics in Macroeconomics (S2). A concurrent enrolment on ECON8011 Microeconomic Theory A is strongly advised for students from outside of the RSE.

Learning Outcomes

At the completion of this course, students should be able to:

1. Understand Key Empirical Facts and Issues relating to Macroeconomics;
2. Apply modelling and quantitative/computational skills;
3. Interpret macroeconomic time series phenomena and study dynamic policy design using well-structured theory;
4. Begin to develop original ideas extending from the basic literature;

5. Discuss the usefulness and limitations of existing competing theories; and
6. Critically read and understand many research articles, newspaper and magazine articles covering current economic events.

Assessment Summary

Assessment Task†	Value	Due Date	Feedback	*Linked Learning Outcomes*
Tutorial Participation	0% to 20%	Weekly from Week 2‡	In-class	1-5
Tutorial Preparation	0% to 20%	Weekly from Week 2‡	In-class	1-5
Final Examination	60% to 100%	ANU Exam Period	None	1-5

† Read ASSESSMENT REQUIREMENTS below for more details.

‡ See COURSE PLAN below for more details.

Research-Led Teaching

Some of the skillsets, major questions, insights and case studies learned in this course relate directly to the frontier work your instructor and his colleagues are engaged in. In particular, the instructor's emphasis on physical presence of students in intellectual discourse, self-disciplined learning, critical and research-like independent thinking is designed to encourage students to become leaders in their own future spheres who are capable of tackling new and challenging issues. Your instructor is an active researcher in the fields of Macroeconomics and Monetary Economics. He sometimes develop new computational methods for solving difficult economic problems, such as dynamic public insurance games in the face of agent heterogeneity, or in models with endogenous market incompleteness in which monetary policy has a non-trivial redistributive role. He publishes regularly in the leading journals of his fields. He is also a regular visitor and contributor to leading policy institutions around the world, such as the U.S. Federal Reserve Bank system, the Reserve Bank of New Zealand, Bank of Japan, and the Hong Kong Monetary Authority. He currently serves as Treasurer and Chief Technology Officer of the not-for-profit Australasian Macroeconomics Society, and, as the convenor of Australia's leading 4-th-year Honours in Economics program.

Feedback

Staff Feedback

- **In-class Activities.**
  - To maximize your experience and feedback on your progress, please attempt all the tutorial problem sets before attending tutorials.
  - Most of the learning is reinforced through solving problems on your own and being able to discuss it with the class afterwards.

- **Lecturer Office Hours.**
  - For maximal value, you should have read the relevant materials (textbook, lecture slides) and attempted problems, before turning up to office hours with questions. If you have any difficulties, please do not hesitate to come and see us; and do not wait until the end of semester to do so. I am here to assist your learning and also to ensure that your university experience continues to be a fun and rewarding one!
- **Tutorial Preparation, Participation and Feedback.**
  - Answers to these activities and general discussions relating to how you understood the material tested will be provided in class.
- **WATTLE Forum.**
  - Feel free to post short questions related to the course material on WATTLE Forum. The usual internet etiquette applies. The teaching team may answer your questions occasionally. However, please reserve long queries to physical office hours, as we can best help you there.

Student Feedback

ANU is committed to the demonstration of educational excellence and regularly seeks feedback from students. One of the key formal ways students have to provide feedback is through Student Experience of Learning Support (SELS) surveys. The feedback given in these surveys is anonymous and provides the Colleges, University Education Committee and Academic Board with opportunities to recognise excellent teaching, and opportunities for improvement.

For more information on student surveys at ANU and reports on the feedback provided on ANU courses, go to
http://unistats.anu.edu.au/surveys/selt/students/ and
http://unistats.anu.edu.au/surveys/selt/results/learning/

Policies

ANU has educational policies, procedures and guidelines, which are designed to ensure that staff and students are aware of the Universitys academic standards, and implement them. You can find the Universitys education policies and an explanatory glossary at: http://policies.anu.edu.au/

Students are expected to have read the Academic Misconduct Rule before the commencement of their course.

Other key policies include:

- Student Assessment (Coursework)
- Student Surveys and Evaluations

Required Resources

- Economic Dynamics in Discrete Time, 2014 (MIT Press): Main textbook

  by **Jianjun Miao ("Mi")**
  ISBN: 978-0262027618

- Recursive Macroeconomic Theory, 3rd Edition, 2014 (MIT Press)

  by Lars Ljungqvist and Thomas J. Sargent ("LS")
  ISBN-13: 978-0262018746

- Custom Notes (a.k.a. "CN"):
  - Linked from WATTLE

- Other Useful References:
  - Carl E. Walsh (2003). Monetary Theory and Policy. MIT Press. ("Wa")
  - Ed Nosal and Guillaume Rocheteau (2011), Money, Payments, and Liquidity. MIT Press. ("NR")
  - Daron Acemoglu (2009). Introduction to Modern Economic Growth. MIT Press. ("Ac")
  - Jerome Adda and Russell Cooper (2003). Dynamic Economics. MIT Press.
  - Mario J. Miranda and Paul L. Fackler (2002). Applied Computational Economics and Finance. MIT Press.
  - Ben J. Heijdra and Frederick van der Ploeg (2002). The Foundations of Modern Macroeconomics. Oxford University Press.
  - John Stachurski and Thomas J. Sargent (2014-). Quantitative Economics (http://quant-econ.net/)
  - Nancy Stokey and Robert E. Lucas, Jr. (with Ed Prescott). Recursive Methods in Economic Dynamics. Harvard University Press.
  - Charles I. Jones (2013), Macroeconomics, 3rd International Student Edition, New York: Norton. (For undergraduate revision.)
  - David Romer (2006), Advanced Macroeconomics, 3rd Edition, McGraw-Hill. (For diploma-level revision.)

  If you cannot afford, or do not wish to own, a personal copy of the textbook, copies are available from the ANU Library's 2-Hour Reserve listing.

Scientific Computation:

The modern economics student is expected to possess not just analytical skills but increasingly computational skills, both in academia and in the wider marketplace for economists. You are not expected to have any prior training in such skills, but you are expected to have a flexible and open mind towards learning it as we go.

In this course, we will use the high-level (i.e. user friendly) programming language called Python (http://python.org or https://store.continuum.io/cshop/anaconda/).

Examination material or equipment

Go here: https://exams.anu.edu.au/timetable/

ASSESSMENT REQUIREMENTS

Your overall course mark will be calculated according to this formula:

$$\max\left\{\left(0.6\times FE+0.2\times TP+0.2\times HW\right),\left(0.8\times FE+0.2\times TP\right),\left(0.8\times FE+0.2\times HW\right),FE\right\},$$

where FE, TP and RA refer to the Final Examination, Tutorial Participation and Regular Assignments, respectively. These components are graded out of 100%. The nature of these assessments and their requirements are further defined below. The instructor has the discretion in awarding bonus points for assessable work that is of exceptional quality.

Examination

(FE) Final Examination (60% to 100%). Completion of the final examination is necessary for a successful completion of the course. If you do not complete the final examination you will fail the course. Feedback will not be provided on the final examination, by the very definition of a final examination.

Tutorial Participation and Assignments

(TP) Tutorial Participations (0% to 20%). This is an optional and redeemable component, so you may choose to not participate, for whatever reason. Your choice to opt out of this assessment will automatically shift the weight of this component toward the final examination.

> **Assessment Rubric.** Your tutorial participation will be assessed based on:
>
> - (50%) the instructor's observation and inference of the level your prior preparation (evidenced through the quality of your live work and demonstration in class) and your willingness to contribute to discussions; and,
> - (50%) the clarity of your presentation to the class. This includes the use of appropriate mathematical workings, graphical devices, and verbal explanations.

(HW) Tutorial Preparation (0% to 20%). This is an optional and redeemable component, so you may choose to not submit any work here, for whatever reason. Your choice to opt out of this assessment will automatically shift the weight of this component toward the final examination.

> **Assessment Rubric.** Each tutorial submission will be graded based on indicative evidence of preparation defined by the discrete levels of 30% (poor), 70% (adequate) or 100% (exceptional). The evidence sought must contain:

- (90%) Indications of technical competency and understanding (e.g., in terms of logical thinking, clarity of solutions and code) and overall ability to communicate with the reader and to explain the subject matter and analysis. Equal weight will generally be assigned to both considerations.
- (10%) Proper citations of references and other sources of information used, and where relevant, replicability of human/machine computed results.

Feedback will be provided (in class) on weekly assessments either on the board or via paper handouts. Students, at this level of maturity, are expected to be able to think about the feedback and reconcile them with their own attempts. There will be no online handouts here.

Online Submission. HW Assignments must to be submitted via WATTLE in PDF format or as `Jupyter` notebooks with replicable content.

If an assessment task is not submitted by the WATTLE -announced due date, a mark of 0 will be awarded. This course does not entertain requests for extension on redeemable assessment items.

Group work, self-discipline and taking ownership of your learning.

- Group work is encouraged to help reinforce your learning of the material: What better way to check if you have mastered the material than to be able to explain your understanding to a fellow group member? Also, group work helps build your general and economic communication skills, skills that are commonly required in team-based projects in the professional setting.
  You may submit a joint HW file. (Maximum group size is SIX.) How much effort you contribute, how much you learn within your group, and how you manage the group collaboration is up to you. The same mark will be awarded to all group members of a joint assignment.
- Joint HW assignments will be marked under a more demanding expectation of quality in terms of substance and presentation.
- On ocassions, the instructor reserves the right to award bonus points for exceptional work that exceeds expectations.
- Please keep a copy of the assignment for your records.
- A signed declaration by all group members is mandatory and must be attached to your submission on WATTLE . This form must be used:
  `https://www.rse.anu.edu.au/media/724472/Assignment-Group-Cover-Sheet.pdf`.
  If your group is a singleton set, then use this cover sheet:
  `https://www.rse.anu.edu.au/media/720171/Assignment-Cover-Sheet.pdf`
- You are expected to work through the HW assignments on your own without any instructor input. Please do not ask the instructor for help when attempting HW tasks.

Scaling

Your final mark for the course will be based on the **raw** marks allocated for each of your assessment items. However, your final mark may not be the same number as produced by that formula, as

marks may be **scaled**. Any scaling applied will preserve the rank order of raw marks (i.e. if your raw mark exceeds that of another student, then your scaled mark will exceed the scaled mark of that student), and may be either up or down.

Privacy Notice

The ANU has made a number of third party, online, databases available for students to use. Use of each online database is conditional on student end users first agreeing to the database licensors terms of service and/or privacy policy. Students should read these carefully.

In some cases student end users will be required to register an account with the database licensor and submit personal information, including their: first name; last name; ANU email address; and other information.

In cases where student end users are asked to submit content to a database, such as an assignment or short answers, the database licensor may only use the students content in accordance with the terms of service including any (copyright) licence the student grants to the database licensor.

Any personal information or content a student submits may be stored by the licensor, potentially offshore, and will be used to process the database service in accordance with the licensors terms of service and/or privacy policy.

If any student chooses not to agree to the database licensors terms of service or privacy policy, the student will not be able to access and use the database. In these circumstances students should contact their lecturer to enquire about alternative arrangements that are available.

SUPPORT FOR STUDENTS

The University offers a number of support services for students. Information on these is available online from http://students.anu.edu.au/studentlife/

COURSE PLAN

Week/ Session	Summary of Activities (Feb 20 - Apr 1)	Assessment
1	• Tooling Up Week: Some Basics of Scientific Programming in Python. • Random Variables and Stochastic Processes; Example of a Stochastic OLG Model; Simulating "cyclical" economic outcomes. **Reading assignment: CN; LS, 2**	
2	• Economic Growth and Empirical Regularities. • Prior Encounters—Recursive Equilibrium by Example: Solow-Swan and other model variations; OLG model. • Special Cases: Linear Dynamical Systems. **Reading assignment: Mi 1.1-1.6 and 2.1; LS, 2 and 9 (optional); Ac, Ch-9**	HW, TP
3-4	• Business-cycle Measurement and Empirical Regularities • Complete financial markets benchmark: Representative-agent result • Asset Pricing • Fundamental Welfare Theorems of General Equilibrium: Equivalent Planner Problem • Model Variations **Reading assignment: CN; Mi, 13-14; Wa, 2, 3 (optional)**	HW, TP
	• Turning infinite-horizon decision problems (infinite-dimensional optimization) into recursive finite-dimensional problems • Application to RBC models • Approximate linear solution methods (Undetermined Coefficients Method); Connections to black-box time-series modelling; Taking Theory to Data: Structural Estimation **Reading assignment: CN; Mi 12; LS, 2**	HW, TP

Week/ Session	Summary of Activities (Apr 19 - May 26)	Assessment
7-9	• More Empirical Evidence and Policy Issues • Rationalizing the undergraduate AD-AS framework as New Keynesian model • Solving and Simulating a NK economy; Policy Counter-factuals • Introduction: Dynamically inconsistent policy plans and credible public policies **Reading assignment: CN; Mi 19, 21; Wa, 8**	HW, TP
10-11	• Unemployment, Job Search and Matching • Money, Finance and Payments Revisited: A Critique of Mainstream Monetary Policy Models **Reading assignment: Mi, 18; LS, 6; NR, 1-4**	HW, TP
12	• Where have we been; where to from here? • Woodshed Sessions	
		Final Examination

WARNING: The schedule above may be subject to variations during the semester. Keep up with the WATTLE Lecture Log (*).