

# L13509 Advanced Monetary Economics

The University of Nottingham

2020

## Instructor

- Adam Hal Spencer (Assistant Professor of economics).
- Office: B37 Sir Clive Granger Building.
- Email: Adam.Spencer@nottingham.ac.uk.
- Skype ID: adamhalspencer.
- Office hours: M (11:00 – 12:00); Tu (10:00 – 11:00) or by appointment.

## Teaching Assistant

- Rachel Cho (Ph.D. student in economics).
- Email: lexrc7@exmail.nottingham.ac.uk.

## Meetings and dates

- **Class days/times:** Lectures: M (09:00 – 11:00); Tu (09:00 – 10:00). Tutorials: check your personal timetable.
- **Exams:** TBA.

## Contacting the Instructor

The best method of contact is via email: I'm happy to answer questions through this platform. If you send me an email and don't receive a response within a couple of days, please feel free to send me another, (I get a bit forgetful sometimes). If you can't make office hours, we can make an appointment for an alternative time or have a discussion over Skype (my ID is given above).

## Course description

Money is a special commodity. It's intrinsically useless yet everybody in society works for, carries and trades with it. Moreover its supply is a policy tool for the government. In this class, we start by reviewing the idea of the non-neutrality of money and think about old theories surrounding its impact on the economy. From there, the objective is to study the the macro impact of money in a formal and rigorous way through dynamic general equilibrium models, while also giving consideration to the government's optimal policy decisions.

## Mathematics

**This module will be mathematical** in nature. I will not expect you to write complicated proofs or anything like that, but there will be some techniques that you will be required to master and apply constantly throughout the module. In particular, some of the techniques we'll make use of are

- Constrained optimisation (static, dynamic discrete and continuous time).
- Linearisation techniques.
- Basic probability theory.

If it's been a while or if you're low in confidence with math, don't stress! I will dedicate two lectures to reviewing the mathematical techniques necessary for the course (see the lecture schedule). In addition, you'll have tons of opportunities to practice these techniques in exercise sets and tutorials. If you understand the math in lecture notes and exercise sets, you have sufficient mathematical background to perform in this module.

## Exercise Sets

Each set of lecture notes will be accompanied by an exercise set and solutions. The purpose of these sets is to give you practice for the assessment of the module and help your understanding of the material. **I will not grade these exercise sets** and you can view them as being optional or non-compulsory with regard to your final grade. They are there to help you and I highly recommend solving them all before the assessment as they are a strong indicator of the type of problems I will ask you in the exam.

## References

I have no required books or other texts for the course. It is designed to be self-contained with the material in the lecture slides and exercises. We'll spend a lot of time talking about the new Keynesian model: a good reference for this stuff is Gali (2008), "Monetary Policy, Inflation and the Business Cycle". But be aware that the math in that book with regard to linearisation is **slightly different** to the way we'll do it in this course, so some of the key equations may look a bit different. Your main point of reference should **always** be my lecture slides.

## Tutorials

There will be tutorials held at different times throughout semester: please see your timetable for the dates. These are for more practice and revision for the exam. The teaching assistant will give you exercises to work through and the solutions will be discussed together as a class.

## Assessment

Your final score for the class ( $S$ ) will come from the following formula

$$S = 0.25 \max(CW_1, CW_2) + 0.75E$$

where  $CW_1$  is the first coursework,  $CW_2$  is the second coursework and  $E$  is the final exam. That is — 25% of your overall score comes from coursework and the remaining 75% from the exam. The two courseworks are to be completed **in groups** (more details below); the 25% coursework score will come from the **maximum** of the two that you complete.

## Coursework

The two coursework pieces will be

1. An essay,
2. A computer exercise to be completed with Dynare, (which will be discussed in class later in the semester).

Both will be graded out of 100. You should complete your courseworks in **groups of 3 or 4 people**; one writeup should be handed-in for each group. I'll circulate a Google spreadsheet to record the names of members of your group. Please form groups and record them, (or email me if you need to be allocated to one), by the end of the second week of lectures.

## Free-Riding in Coursework Groups

At the submission date for each coursework, I'll send-out a survey to each group to evaluate each member's effort in the coursework described above. People who are consistently flagged by their group members as free-riders will have their coursework scores adjusted downwards. Don't free-ride, people!

## Perspectives Classes and Bonus Points

Throughout semester, there will be two special classes that I'll refer to as perspectives classes. The purpose of these two classes is to get you thinking more broadly about economic issues, rather than focusing on technical material like we focus on predominantly in the lectures. If someone asks you, "is Brexit a good or bad thing for the UK economy?", it's a bit difficult to answer sometimes based on the technical things we teach you here at University. These classes are meant to help broaden your thought process for questions like these for when you go out into the real world.

In these classes, you'll form groups (based on your coursework groups: I'll be more specific before the first one). I'll then give you prompts relating to a case study, to which your group is to respond in the form of a short memo. Groups that lie in the top 20% of responses from these perspectives classes, (judged by myself), will receive **bonus points on their coursework scores**. Specifically, I'll **multiply their raw coursework scores by a factor of 1.3** subject to an upper-bound of 100. Since these are bonus points, I won't announce the top groups; the coursework factor will be applied to their final scores. The material from these classes is **non-examinable**.

## **Notation Lists**

When we start studying a different model, the notation I use will often change. I typically try to stick close to the notation that is used in the profession when discussing the model under consideration. To help avoid confusion, I've created notation lists for each set of lecture notes. These are best used by bringing them to lecture, (either on your phone or by print).

## **Sample Exams**

I'll give you full-length sample exams to work-on in your own time towards the end of semester.

## **Lecture Recordings**

I'll endeavour to record all the lectures, (subject to any technical issues). If there are problems with any of the recordings please let me know.

## Lecture Schedule (Subject to Change)

Class	Lecture Hour	Week No.	Date	Topic	Due
1	1	19	27 Jan	L1: Mathematical methods I	
1	2	19	27 Jan	L1: Mathematical methods I	
2	3	19	28 Jan	L2: Non-neutrality of money	
3	4	20	3 Feb	L2: Non-neutrality of money	
3	5	20	3 Feb	L3: Real business cycle (RBC) model	
–	–	20	4 Feb	No class	
4	6	21	10 Feb	Perspectives class I	
4	7	21	10 Feb	Perspectives class I	
–	–	21	11 Feb	No class	
5	8	22	17 Feb	L3: Real business cycle (RBC) model	
5	9	22	17 Feb	L4: Money in the RBC model	
6	10	22	18 Feb	L5: Money in the utility function (MIU) model	
7	11	23	24 Feb	L5: Money in the utility function (MIU) model	
7	12	23	24 Feb	L6: Cash in advance (CIA) model	<i>CW<sub>1</sub></i>
8	13	23	25 Feb	L6: Cash in advance (CIA) model	
9	14	24	2 Mar	L7: Overlapping generations model (OLG)	
9	15	24	2 Mar	L7: Overlapping generations model (OLG)	
10	16	24	3 Mar	L8: New Keynesian model I: imperfect competition	
11	17	25	9 Mar	L8: New Keynesian model I: imperfect competition	
11	18	25	9 Mar	L9: New Keynesian model II: price stickiness	
12	19	25	10 Mar	L9: New Keynesian model II: price stickiness	
13	20	26	16 Mar	L10: New Keynesian model III: NK Phillips curve	
13	21	26	16 Mar	L10: New Keynesian model III: NK Phillips curve	
14	22	26	17 Mar	L11: Solving DSGE models I: analytical methods	
15	23	27	23 Mar	L11: Solving DSGE models II: numerical methods	
15	24	27	23 Mar	L12: New Keynesian model IV: optimal monetary policy	
16	25	27	24 Mar	L12: New Keynesian model IV: optimal monetary policy	
17	26	28	30 Mar	L13: Mathematical methods II	
17	27	28	30 Mar	L13: Mathematical methods II	
18	28	28	31 Mar	L14: New Monetarist model I: 1 <sup>st</sup> generation	
19	29	33	4 May	L14: New Monetarist model I: 1 <sup>st</sup> generation	
19	30	33	4 May	L15: New Monetarist model II: 2 <sup>nd</sup> and 3 <sup>rd</sup> generation	
20	31	33	5 May	L16: Revision class I: quantitative problems	
21	32	34	11 May	Perspectives class II	
21	33	34	11 May	Perspectives class II	
22	34	34	12 May	L17: Revision class II: essay questions	<i>CW<sub>2</sub></i>