Carleton University
Department of Economics

ECON 6503 F
PhD Macroeconomic Theory I
2022 Fall

Instructor: Dana Galizia
Office: D-885 Loeb Building
Email: dana.galizia@carleton.ca
Office Hours: By appointment

Lectures: Thursdays, 2:35p-5:25p (in person)
Course Location: Log into Carleton Central to view the location on your timetable.

Course Website: Brightspace

Course Description

Calendar description: *Analysis of dynamic macroeconomic systems, with applications to economic growth. Micro-foundations of modern macroeconomics, with a focus on solving dynamic optimization problems and applied to consumption, portfolio, and investment decisions, and to micro-founded growth models.*

This course precludes additional credit for ECON 6021 (no longer offered).

Textbook

There is no required textbook for the course. Some recommended texts that you may find helpful for reference purposes are:[1]

1. Daron Acemoglu, *Introduction to Modern Economic Growth*, Princeton University Press.

2. Lars Ljungqvist & Thomas J. Sargent, *Recursive Macroeconomic Theory*, MIT Press.

3. Robert J. Barro & Xavier Sala-i-Martin, *Economic Growth*, MIT Press.

4. Nancy L. Stokey & Robert E. Lucas, Jr., *Recursive Methods in Economic Dynamics*, Harvard University Press.

---

[1]In cases where there are multiple editions, newer editions are usually preferable, but in most cases any edition will do.

5. David Romer, *Advanced Macroeconomics*, McGraw-Hill.

The course will be taught mainly from my own lecture notes, which will be posted on the course website. These notes generally (though not always) overlap with one or more of the above textbooks, though the presentation style is in many cases quite different. As a result, the textbooks, while not necessary, may be useful for some students who feel they could benefit from a different take on the materials covered in the lecture notes. My suggestion is to hold off on buying any of these textbooks until you have a better idea of whether you might benefit from it.

If you do end up buying one of these textbooks, here are my own opinions on them (other professors may reasonably disagree).

- If you're only going to buy one, I think Ljungvist & Sargent will be the most useful in your future as a macro researcher *unless* you plan on working in economic growth (which is not covered). It's also a bit lacking in terms of formal theory, instead taking a bit more of an intuitive, informal approach.

- For economic growth, or to get a better handle on formal macro theory, Acemoglu is probably your best bet (despite its name, much of the theory discussed in the first half of Acemgolu's book is applicable well beyond the sub-field of economic growth).

- Barro & Sala-i-Martin is a good option if you're interested in economic growth, but want to avoid the formal theory in Acemoglu.

- Stokey & Lucas is the most comprehensive of these options when it comes to formal macro theory, but is written at a highly technical, mathematical level (much moreso than even Acemoglu). I wouldn't make this your first stop for anything, but it's a great secondary reference work for the more mathematically inclined.

- Romer is a good textbook if you want a comprehensive high-level overview to a particular macro topic, with lots of citations to direct you to further reading. However, while it excels in breadth, it's lacking in detail. For example, many of the mathematical derivations are omitted, with only the final result shown, which can be frustrating at times for students.

Course Website

This course will make use of Brightspace. I will post all materials for the course on the Brightspace course website, and also use that platform as a means of communicating important information about the course. Please ensure that you are set up on Brightspace prior to the course start date.

Lectures

All lectures will be held in person only. No recordings will be made available.

Course Material

As noted above, the course will be taught mainly from my own lecture notes. However, there may be cases where I discuss some things in class that aren't in the lecture notes, or vice versa. Unless I specifically indicate otherwise, you are responsible for knowing all material discussed in class *or* in the lecture notes (or both).

Computational Software

This course will involve assignments that require the use of computational software. You may choose from the following two options (**and *only* the following two options**):

1. **MATLAB**, which requires a paid license. If you have a Carleton email account, you should have access to a student MATLAB license for free through the university.
2. **Julia**, which is freely available software.

The main advantage to MATLAB is that it is a very mature piece of software (the earliest versions are from the late 1970s) that is also officially maintained and extensively supported by the company that owns it (Mathworks). As a result, in my experience it is easier to use, more reliable, and has more support and help available for it (both official and unofficial) than Julia.

On the other hand, Julia is probably more powerful and versatile than MATLAB, and for some applications also considerably faster. It's also freely available, which makes it more likely to be available to you in the future if and when you no longer have access to a Carleton MATLAB license. The main downsides are that it can be harder to work with at times than MATLAB, and since the software is relatively new and doesn't have the same resources behind it as MATLAB (after all, it's free), it ultimately does not have the same degree of support and help available for it.

You are free to do your assignments with either piece of software. The one caveat you should be aware of, though, is that I myself have limited experience with Julia, so I won't be able to be of much (if any) help to you if you're having trouble with something.

Course Outline and Schedule

The outline below lists the tentative plan for the topics that we will cover. I reserve the right to make changes to this list as the term proceeds.

1. Economic growth

   (i) Solow model
   (ii) The Ramsey-Cass-Koopmans model
   (iii) Endogenous growth

2. Discrete-time optimization theory

3. General equilibrium in an endowment economy

Evaluation

Each student's grade will be calculated as follows:

- Written assignments: 40% (five assignments worth 8% of the final grade each).

- Midterm exams: 30% (two midterms worth 15% of the final grade each).

- Final exam: 30%.

Assignments

There will be five assignments, each worth 8% of the final grade. All assignments will be completed by students outside of class time. Each assignment will consist of various questions intended to support and reinforce students' comprehension of the course material, and to provide an indication of the type of questions that will be on the exams. As such, students are encouraged to treat each assignment as a critical learning opportunity. While students are encouraged to discuss the assignment material with classmates, each student must ensure that their submitted work is their own. Please see the statement on plagiarism below.

Note that, while you are free to use Generative Artificial Intelligence tools (e.g. ChatGPT) to assist you in preparing your assignments if you want, I sincerely doubt they will be of much help to you, so I wouldn't bother wasting your time.

Generally speaking, **only physical copies** of assignments will be accepted, and must be received by the due date and time indicated on the assignment. **Late assignments will not be accepted, and will receive a mark of zero.** In those rare cases where an unexpected emergency prevents you from being able to make it to campus to turn in your assignment, you should scan it (either using a proper scanner, or using your smartphone with some kind of scanning app) and submit it to me electronically via email **before** the due date and time, along with an explanation for why you were unable to deliver the assignment in person. If I consider your explanation acceptable, I will grade the electronic submission (NOTE: In such cases, I won't be able to provide explicit feedback, you'll only receive your marks). If I don't consider your explanation acceptable, you'll receive a mark of zero.

I will generally post the assignments 7-10 days in advance of the due date, and therefore **only in rare cases where a student can document a compelling reason for a <u>prolonged</u> absence will he or she be excused from handing in an assignment**. In such rare cases, the weight of that assignment will be transferred to the final exam.

The tentative due dates for the assignments are as follows: **Sep. 21, Oct. 5, Nov. 2, Nov. 23, and Dec. 7**. I reserve the right to modify these dates depending on how the semester progresses.

While every effort will be made to return graded assignments to students in a timely manner, sometimes delays are unavoidable. It is therefore recommended that students **retain some form of copy of their completed assignment** when handing it in.

Exams

All exams will be in-person only.

Midterm Exam

There will be two midterms, tentatively scheduled for **Thursday, October 12** and **Thursday, November 16** during the lecture time. However, I reserve the right to modify these dates depending on how the semester progresses.

If you miss a midterm, the weight of that midterm will be automatically added to the final exam. There will be no deferred/make-up midterm exams. If it is possible to do so, students must inform me in advance if they are unable to write a midterm for some reason. I reserve the right to request a Self-Declaration form or PMC letter of accommodation.

Final Exam

The final exam will take place during the term examination period at a time set by the University. Students are not to make travel plans during the exam period as that is not a valid reason for missing a final exam.

The final exam will cover content from the entire course.

Re-grading

Any request for the remarking of an exam or assignment must be submitted in writing within one week of exam/assignment grades being returned to the class. The request should contain a detailed explanation of why you feel you should receive a higher mark. Please note that remarking will apply to the entire assignment/exam, not just the contentious question. As a result, the revised mark could end up being higher than, lower than, or the same as the original mark.

Final Course Grade

Students must write the final exam in order to achieve a passing grade (B- or higher). Students who do not write the final exam because of illness or other circumstances beyond their control may apply to write a deferred final exam by contacting the Registrar?s Office no later than three working days after the original final exam was scheduled. In the event that a student writes a deferred exam, the deferred exam will carry the same weight as the final exam in determining the course grade. Any deferred exam will not be identical to the original final exam.

Standing in a course is determined by the course instructor subject to the approval of the Faculty Dean. This means that grades submitted by the instructor may be subject to revision. No grades are final until they have been approved by the Dean.

Plagiarism, Resources and Mental Health, Academic Accommodations

You are responsible for reading and knowing the information about plagiarism, Carleton University resources, and academic accommodations found here.

Treatment of Course Materials

Student, teaching, assignment or professor materials created for this course (including but not limited to lecture slides, presentations and posted notes, labs, case studies, assignments, exams and solutions to assignments and exams) remain the intellectual property of the author(s). They are intended for personal use and may not be reproduced or redistributed without prior written consent of the author(s).