

**Carleton University
Department of Economics**

**ECON5021W
Macroeconomic Theory
2022 Winter**

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Lectures: Online asynchronous. Lecture recording released Thursdays prior to scheduled slot (2:35pm–5:25pm)
Tutorials: Online synchronous. Mondays, 7:35pm–8:55pm

Course Website: [Brightspace](#)

Course Description

This course introduces advanced techniques and topics in macroeconomic theory at a Master's level. We will cover a range of theoretical models of business cycles, economic growth, consumption, and labour markets.

The main objectives of the course are:

- To develop analytical skills for studying a range of dynamic general equilibrium models. By the end of the course, you should be able to solve macroeconomic models using methods of constrained optimization.
- To develop skills to solve and analyse simple macroeconomic models using the soft-ware [Dynare](#)

- To understand interactions between macroeconomic theory and data.
- To highlight some important contemporary issues and policy debates in macroeconomics

Textbook

There is no required textbook for the course. Recommended texts include Jianjun Miao (JM), “Economic Dynamics in Discrete Time” (MIT Press) and David Romer (DR), “Advanced Macroeconomics”, either the 4th or 5th Edition (McGraw-Hill).

You might find the Gali textbook “Monetary Policy, Inflation, and the Business Cycle” (Princeton University Press) useful for the final lecture or two. Any edition will do.

As a supplementary text, you may also in some cases find the following text useful: Jean- Pascal Benassy, “Macroeconomic Theory”, Oxford University Press.

The course will be taught mainly from my slides. I will refer to lecture notes written by Dana Galizia and lecture notes written by Dirk Krueger (UPenn). The slides and lecture notes will all be posted on the course website. These notes often overlap with the above textbooks, though the presentation style is in many cases quite different across the slides, notes and textbooks. As a result, the textbooks may be useful for some students who feel they could benefit from a different take on the materials covered in the slides lecture notes.

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

Lectures will be pre-recorded (i.e., asynchronous delivery) and made available weekly on Tuesdays prior to the scheduled start of the lecture. I will make use of lecture slides and using a blackboard feature. I will also present practical exercises using Matlab and Dynare.

As the recorded videos will differ from the live lectures as there will be no time required for arrival and departure, breaks, questions and short diversions, the length of the videos will be around 45 minutes per scheduled hour. This will prevent the inclusion of *too much* information being given relative to a live (synchronous) lecture. I will also break the lectures up into a set of shorter videos each week.

Course Material

As noted above, the course will be taught mainly from my own slides together with the lecture notes of Galizia and Krueger. In the slides, I will refer to specific sections on the notes that are required reading. There may be cases where I discuss some things in the lecture videos that aren't in the slide/lecture notes, or vice versa. Unless I specifically indicate otherwise, you are responsible for knowing all material discussed in the lectures, in the slides and in the referenced sections from the lecture notes.

Evaluation

Each student's grade will be calculated as follows:

1. Written assignments: 32% (four assignments worth 8% of the final grade each).
2. Midterm exams: 32% (two midterms worth 16% of the final grade each).
3. Final exam: 36%.

Tutorials

The weekly tutorials will be TA led. They will be held live with the exact format to be determined. You are highly encouraged to attend the live tutorials if at all possible as they will provide an opportunity for you to spend time on sections of the lecture that you find difficult or confusing.

Depending on the needs and interests of the students, the TA will spend time reviewing the material in the lecture and working through the previously submitted assignment questions.

Software

Some of the course will require the use of the software Dynare. You can visit www.dynare.org for more information and to download. I recommend you use Dynare with Matlab which you can download from www.mathworks.com. I will provide information on installation and using this software during the course.

Assignments

There will be four assignments, each worth 8% of the final grade. 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.

Assignments will be submitted electronically via Brightspace (more on submission guide- lines below), 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.**

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 *prolonged absence* will he or she be excused from handing in an assignment.** In such a rare case, the weight of that assignment will be transferred to the final exam.

The tentative due dates for the assignments are as follows: Jan. 31, Feb. 14, Mar. 7 and Mar. 21. I reserve the right to modify these dates depending on how the semester progresses.

Exams

The midterm and final exams in this course will be “take-home” ones. In all cases, the exam will be made available on Brightspace at a certain date and time, and students will be given a certain number of hours to complete and submit it (again, via Brightspace; see below for submission guidelines).

Midterm Exam

There will be two midterms, tentatively scheduled for Monday, February 7 and Monday, March 14 during the normally scheduled tutorial times (7:35pm–8:55pm). However, I reserve the right to modify these dates depending on how the semester progresses.

Students who can document a compelling reason for missing a midterm exam will be excused and the weight of that midterm will be automatically added to the final exam. If possible, students must inform me in advance if they are unable to write a midterm for some reason. There will be no deferred/make-up midterm exams.

Final Exam

The final exam will take place during the Fall term examination period at a time set by the University. The final exam will cover content from the entire course.

Electronic Submissions

All electronic submissions of assignments and exams must be in pdf format only. If you're unsure how to create a pdf document from whatever original form your assignment is in, let me know and I'll see if I can guide you through the process. (Please don't try to ask for help on the afternoon of a due date. It will likely be too late for me to help you at that point.)

In terms of the original form of your assignment, you have a few options:

1. Do your assignment by hand, and then scan it (either using a proper scanner, or else using your smartphone with some kind of scanning app).
2. Type up your assignment up using MS Word (or something equivalent). While typing up math can be a bit of a pain, MS Word actually has decent support for equation editing. On a Windows PC, you can create an equation using the keyboard shortcut “Alt”+“=” (“Ctrl”+“=” on a Mac). You can also enter Greek letters by using a backslash, spelling out the Greek letter, and then hitting space (e.g., typing “\alpha” and then space will produce a “ α ”). There are also buttons and menus that allow you to input things like fractions, summations, integrals, etc.
3. Use the extremely powerful LaTeX system. This option is more advanced, though if you plan to continue doing any kind of scientific/mathematic writing, it's well worth learning how to create documents using LaTeX. There are lots of options out there for this, and lots of guides on the internet for how to get started. You could decide to write things directly in LaTeX mark-up code (kind of along the same lines as writing something in HTML), a much easier option is to use the free open-source program [LyX](#), which is a front-end for LaTeX that works more like a conventional document editor, but with much better (i.e., easier to use and more flexible) support for mathematical notation than MS Word. Before installing that, you'd need to first install a TeX distribution (see [here](#) for more info on that). For direct LaTeX mark-up, I recommend using [Overleaf](#) which is browser based and doesn't require any software to be installed. The Overleaf [website](#) also has many tutorials for beginners (to more advanced users).

Re-grading

Any request for the remarking of a midterm 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 fulfill both the midterm and final exam course requirements in order to achieve a passing grade (D- or higher). Failure to write either examination without a documented compelling reason will result in a grade of F. Application to write a deferred final examination must be made at the Registrar's Office.

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

Please be aware that plagiarism is a serious offence at Carleton and should be recognized and avoided. For further information on how to do so, please see [Pamphlet on Plagiarism and Paraphrasing](#).

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).

Requests for Academic Accommodation

You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

Pregnancy obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf.

Religious obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Academic Accommodations for Students with Disabilities

If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520- 6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. For more details, visit the Paul Menton Centre website: carleton.ca/pmc.

Survivors of Sexual Violence

As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and where survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: carleton.ca/sexual-violence-support.

Accommodation for Student Activities

Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, see the policy: carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf.

For more information on academic accommodation, please contact the departmental administrator or visit: students.carleton.ca/course-outline.

Special Information Pertaining to COVID-19

All members of the Carleton community are required to follow COVID-19 prevention measures and all mandatory public health requirements (e.g. wearing a mask, physical distancing, hand hygiene, respiratory and cough etiquette) and [mandatory self-screening](#) prior to coming to campus daily.

If you feel ill or exhibit COVID-19 symptoms while on campus or in class, please leave campus immediately, self-isolate, and complete the mandatory [symptom reporting tool](#). For purposes of contact tracing, attendance will be taken in all classes and labs. Participants can check in using posted QR codes through the cuScreen platform where provided. Students who do not have a smartphone will be required to complete a paper process as indicated on the [COVID-19 website](#).

All members of the Carleton community are required to follow guidelines regarding safe movement and seating on campus (e.g. directional arrows, designated entrances and exits, designated seats that maintain physical distancing). In order to avoid congestion, allow all previous occupants to fully vacate a classroom before entering. No food or drinks are permitted in any classrooms or labs.

For the most recent information about Carleton's COVID-19 response and required measures, please see the [University's COVID-19 webpage](#) and review the [Frequently Asked Questions \(FAQs\)](#). Should you have additional questions after reviewing, please contact covidinfo@carleton.ca.

Please note that failure to comply with University policies and mandatory public health requirements, and endangering the safety of others are considered misconduct under the [Student Rights and Responsibilities Policy](#). Failure to comply with Carleton's COVID-19 procedures may lead to supplementary action involving Campus Safety and/or Student Affairs.

Course Outline and Schedule

The outline below lists the plan for the topics that we will cover.¹ The slides published each week on Brightspace will link to the the required and suggested readings.

1. Dynamic Macroeconomic Models (weeks 1-2)

In these lectures we will cover foundations of macroeconomic theory and the key concepts

¹ Please note that I reserve the right to make modifications to the list of contents as the term proceeds. If I make a modification, I will provide advance warning either in class or through Brightspace.

in macroeconomic model building. We will look at the typical ingredients of macroeconomic models and outline some of the most important workhorse models in modern macroeconomics. We will also give an overview of solution methods.

2. Consumption and Risk (weeks 3-4)

In these lectures, we shall explore the theory of consumption and savings decisions with and without macroeconomic uncertainty. We will introduce core models on which the majority of modern macroeconomic theory builds.

3. Business Cycle Theory (weeks 5-9)

In these lectures, we will study real business cycle theory. We will examine the filtering of empirical time series and emergence of business cycle analysis. We will then introduce business cycle theory, look at solution methods and calibration.

We will spend a few weeks on computational methods and implementing these methods using MATLAB. This will be of particular use for those wishing to pursue macroeconomics at a more advanced level or plan to write a dissertation in this area.

4. New Keynesian models (weeks 10-12)

In this topic we will extend the real business cycle theory by introducing nominal rigidity. We will derive a benchmark New Keynesian model and extend to build a medium scale dynamic, stochastic, general equilibrium (DSGE) model. We shall see how these models are used in policy analysis.

- NK model - from the simple model to a medium-scale DSGE model
- Financial frictions
- Investment
- The 3-equation model and optimal monetary policy