Dalhousie University
Faculty of Science Course Syllabus
Department of Economics
ECON 4421: Macroeconomics Theory.
Winter 2022.
CRN: 20960

Instructor :
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Lectures :

While Online:

- The first class (Wednesday 01/06 at 1.05pm) will meet synchronously on Brightspace Collaborate.
- The following classes will be delivered asynchronously, and will be posted on Brightspace before class time. The asynchronous lectures will be 30 to 45 minutes long and I encourage you to watch them as soon as your schedule allows. Each Monday and Wednesday we will meet synchronously on Brightspace Collaborate starting at 2pm, to discuss the content of each lecture; the timing is designed so that even if you are unable to watch the videos before class, you will be able to watch them entirely before the synchronous discussion session, by starting at at the beginning of class time.

In person: Mondays and Wednesdays 1.05pm – 2.25pm in McCain building, room 2190.

Prerequisites. ECON 2201.03, ECON 3700.03, MATH 1000.03 (or equivalent), MATH 1010.03

Course Description: this class bridges the gap between macroeconomic models and the data produced by modern economies at the aggregate level. Modern economics has overwhelmingly been empirical in its focus and content and therefore we will focus on the conduct of empirical research in macroeconomics. This is *not* an applied class, but rather we will focus on *methodological* issues and try and assimilate the logic that lies behind some popular empirical strategies.

The past three decades have been very exciting times for macroeconomists due to substantial research efforts towards testing our models against the data. These efforts led to the formulation of a body of empirical methods they are very rarely – if ever – taught at the undergraduate level. This class seeks to get you started with these techniques, and therefore it will challenge you to learn concepts from a set of diverse fields such as linear algebra, calculus, computer programming, statistics, as well as economics. At the end of the class we will engage in the critical reading of one or two important papers that use the sort of techniques that we have learned in class.

Course Materials: I expect you to work mainly with two sources: your notes, and my notes. My lecture notes are brief and they are supposed to be a reference rather than the main study tool: you are expected to take your own notes while attending each lecture.

The class notes serve another purpose: *they contain your homework*. There won't be a separate document/message containing the assignment, but rather you have find in the notes where the homeworks are. I chose this format because (a) it is practical, and (b) it puts each question in the appropriate context.

Grading: the final grade for this class will be based on weekly homework assingments (worth collectively 5%), two midterms (30% each), and a final exam (35%). All tests are comprehensive for this class. Homework assignments are due ever Monday **before the lecture starts**, unless otherwise indicated. While we are restricted to online teaching, you will upload a scan of your homework on Brightspace. After then, the normal modality for turning in your homework will be in person. In case you cannot come to class on the day a homework is due, you can turn in the homework in person before the due date (slip it under my door), or to send it via email in **PDF format**. This is **strict**: I will not accept any other formats. If you cannot turn in a homework assignment on time and you have *very* good reasons for it, you will have to provide a timely warning to me (via email is usually best) and any supporting documentation that I will request. Depending on the case, I may grant an exemption from that homework, assign a new one, or deny your petition and assign a grade of zero to your missing essay.

If you miss a test for a good reason the same guidelines will apply. You will be expected to let me know your issue as soon as possible and to be able to produce any supporting documentation. Depending on the case I may either grant an exception for that midterm, schedule an oral examination on the relevant topics, or deny your petition and assign a grade of zero to your midterm.

The tests will be conducted during normal class hours, in person if possible, online otherwise. The tentative schedule is the following:

- Wednesday, February the 9^{th}, Midterm 1.
- Wednesday, March 16^{th}, Midterm 2.
- Some day in April (decided by the Registrar Office), Final.

This schedule is intended to give you a sense of the deadlines you will be facing during the midterm and it is not firm: we will change it as needed depending on the pace we will be able to keep during the class.

Grading Scale.

Final Weighted Score	Letter Grade
$[90, 100]$	A+
$[85, 90)$	A
$[80, 85)$	A-
$[77, 80)$	B+
$[73, 77)$	B
$[70, 73)$	B-
$[65, 70)$	C+
$[60, 65)$	C
$[55, 60)$	C-
$[50, 55)$	D
$[0, 50)$	F

Course Content:

- Lecture 1: A Review of the IS–LM Framework.
- Lecture 2: Policy in IS–LM. The AS.
- Lecture 3: Transition Dynamics in the AS-AD model.
- Lecture 4: Economic Growth and Rational Expectations.
- Lecture 5: Introducing "Shocks" Linear Algebra.
- Lecture 6: Empirics: Data and Price Indeces.
- Lecture 7: Empirics: A Gentle Introduction to R.
- Lecture 8: The wrong way.
- Lecture 9: The right way.
- Lecture 10: The VAR(p) model.
- Lecture 11: The MA representation of VARs.
- Lecture 12: The VAR's Impulse Response Function.
- Lecture 13: Estimating VARs.
- Lecture 14: Orthogonalization.
- Lecture 15: Identification.
- Lecture 16: Specifying VARs.
- Lecture 17: A Simple Identified VAR Analysis.
- Lecture 18: "Does Monetary Policy Generate Recessions?" Sims, Zha, *Macroeconomic Dynamics*, 2006.
- Lecture 19: Expectations and Technological Growth.