Economics 5322: Macroeconomic Theory for Applications
Spring 2024

Instructor: Camilo Granados
Class Time and Location: Monday 7:00-9:45 PM, CB 1.210
Course Office Hours: Wednesday 4:00-5:20 PM or by appointment (in person and Teams)
Office: GR 2.820
Email: camilo.granados@utdallas.edu
Website: cagranados.github.io (for course website: go to Teaching-link of the course)

Course Description

This course explores modern theories of macroeconomic fluctuations. The goal is to introduce students to the seminal frameworks of contemporary macroeconomics and equip them with relevant analytical and empirical techniques for understanding advanced macroeconomic analyses. The course will cover topics from the monetary theory of business cycles, monopolistic competition, dynamics of price adjustments, financial frictions, consumption theories and, through group projects, provide students opportunities to explore additional topics such as optimal monetary policy, dynamic stochastic general equilibrium (DSGE) analyses, COVID-19 or "lockdown" recession, and so on.

Prerequisites

The course will cover a sequence of mathematical models. This will require familiarity with multivariate calculus and constrained optimization. Techniques such as using the chain rule, setting up a Lagrangian, taking logarithms of functions of multiple variables, and differentiating must be familiar to you. If you have forgotten these topics, you should review them as soon as possible. The only other prerequisite is Intermediate Macroeconomics, with a minimum grade of 2.0.

Workload expectations

You **can expect to work hard in this course**. This course is meant for students highly interested in advanced macroeconomics and willing to do a considerable amount of reading and use plenty of math. If, on the contrary, you are looking for a course at the last minute to fill your schedule, this may not be the right choice. Having said this, you should also know that I am more than happy to reward your effort as possible and that I am willing to work just as hard as I expect you to.

On the other hand, I understand the challenges of these topics. That is why I will try to allocate most of the heavy mathematical lifting on the homework assignments and only as little as required on timed exams. Then, you should also expect the homework assignments to be hard compared to the other components.

Learning Objectives

After this class, you will have been exposed to modern theories of macroeconomics, which will give you an idea of how macroeconomists and policy institutions think about economic and policy questions. A special emphasis will be made on the usefulness of establishing simple baselines with efficient private outcomes (no market failures) on which we can add market frictions and more realistic features. You will also get an overview of the mathematical and modeling tools involved in researching on these topics. Given this, you will be prepared to take Ph.D. level courses in macroeconomics. You will also gain familiarity with applications of time series econometrics in macroeconomics and with part of the computational software used in economics.

Group Work

Working in groups is highly encouraged. Study groups are encouraged for assignments and for any exam preparation. However, you must submit your own individual write-up for all assignments. All exams will be based on individual evaluations; no collaborations are allowed.

Course Textbook

This course does not follow a single textbook. Due to that, it is designed so that you can study the topics by following the slides and assigned handouts. However, each topic may be related to a textbook. The two books that are followed more closely and that can be used as a reference are:

- Chugh, S. Modern Macroeconomics, MIT Press, Cambridge, MA, 2015.
- Romer, D. Advanced Macroeconomics, 5ed., McGraw Hill
- Additional supplementary handouts and study notes will be posted on the course website.

These additional resources are optional unless specified in the slides.

Assessments

- 6 Problem Sets (35%)

There are six homework assignments to help you review and apply the material learned in the lectures. You are strongly encouraged to discuss answers with your group mates, but **you must submit individual write-ups, in your own words**. Assignment grades will be based on a 10-point scale. Eight points will be awarded for completion; the remaining two will be assigned based on the quality of your answers.

- In-Class Group Discussion and Presentation (20%)

There will be **a final group presentation, which will take place during the last week of class**. This will be based on a set of topics that I will assign during the first half of the course.

- Exams (45%)

There will be one midterm exam and a final exam. The exams are not cumulative but the topics overlap and build into each other. The first exam is worth 20% and the final exam 25% and, contingent on our progress, will be on the last week of lectures or on the final examination week. **The dates for the exams are posted and updated on the course website**.

- Optional Computational Project (10% - extra credit)

An additional computational project could be submitted for extra credit. This will consist of a written report summarizing the model and main results of a research article on macroeconomics, together with an analysis of the code used for the model. I will provide a list of articles (with codes available) from which you can choose.

If you cannot make an exam date, the following policy applies, major exceptions are only allowed in case of medical emergencies that concern either you or your family. In this case, please provide a certification by a doctor on the exam. If you miss the final exam, you may need to take a make-up exam next term or later during office hours. This exam could be significantly harder than the exam at the end of this term, reflecting the fact that you have more time for preparation.

- Extra Credit (5%)

Students can receive an additional 5% full credit for turning in their own answers to the "Key Questions" from the slides. I recommend that you submit these in the following session after they appear in the slides. These submissions are optional and thus will not be enforced. The idea with this is that you review the content of the

course regularly. Under this option, the scores from the rest of the contributions will be rescaled to 95% total.

-Teaching evaluation incentive:

A key component in the design of this course is the continuous revision and improvement of its materials and delivery. For this task, having enough feedback and teaching evaluations is paramount. With that in mind, I will give an additional 1% full extra credit on the final grade if the response rate on the teaching evaluations exceeds 80%.

Grading Policy:

Grading scale: 100 >= A >= 93, 93 > A- >= 90, 90 > B+ >= 87, 87 > B >= 83, 83 > B- >= 80, 80 > C+ >= 77, 77 > C >= 73, 73 > C- >= 70, 70 > D+ >= 67, 67 > D >= 63, 63 > D- >= 60, 60 > F

About office hours

To prevent overlapping with other students, you must tell me in advance (via email) if you are attending office hours. You can email me and meet me on the same day for the pre-defined Monday and Wednesday slots. However, for appointments at other times, you need to tell me at least 3 days in advance of the time you expect to meet.

Academic Conduct Policy

The School of Economic, Political, and Policy Sciences – EPPS supports University policies regarding academic honesty and classroom behavior. Students of the course are expected to adhere to the University of Texas at Dallas' Policy on Academic Honesty, that can be found at https://conduct.utdallas.edu/dishonesty/

Class Recordings

Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Withdrawal from Class

The administration at UT Dallas has established deadlines for withdrawal from any course. These dates and times are published in the Comet Calendar (http://www.utdallas.edu/calendar) and in the Academic Calendar (http://www.utdallas.edu/academiccalendar). It is the student's responsibility to handle withdrawal requirements from any class. In other words, a professor or another instructor cannot drop or withdraw any student unless there is an administrative drop such as the following:

- Not meeting the prerequisites for a specific course
- Not satisfying the academic probationary requirements, resulting in suspension
- An Office of Community Standards and Conduct request
- Not making appropriate tuition and fee payments
- Enrollment is in violation of academic policy
- Not admitted for the term in which they registered

It is the student's responsibility to complete and submit the appropriate forms to the Registrar's Office and ensure that he or she will not receive a final grade of "F" in a course if he or she chooses not to attend the class after being enrolled.

Incomplete Grade Policy

As per university policy, incomplete grades may be given at the discretion of the instructor of record for a course, when a student has completed at least 70% of the required course material but cannot complete all requirements by the end of the semester. An incomplete course grade (grade of 'I') must be completed within the time period specified by the instructor, not to exceed eight (8) weeks from the first day of the subsequent long semester. Upon completion of the required work, the grade of 'I' may be converted into a letter grade (A through F). If the grade of Incomplete is not removed by the end of the specified period, it will automatically be changed to a grade of F. The incomplete grade policy is included in the online UT Dallas Undergraduate Catalog, https://catalog.utdallas.edu/now/undergraduate/policies/academic#incomplete-grades and the Graduate Catalog, https://catalog.utdallas.edu/now/graduate/policies/grades#grade-of-i-incomplete.

Accommodations for Students with Disabilities

The University of Texas at Dallas is committed to providing reasonable accommodations for all persons with disabilities. The syllabus is available in alternate formats upon request. If you are seeking classroom accommodations under the Americans with Disabilities Act (2008), you are required to register with the Office of Student AccessAbility (OSA), located in the Administration Building, Suite 2.224. Their phone number is 972-883-2098, email: studentaccess@utdallas.edu and the website is https://studentaccess.utdallas.edu. To receive academic accommodations for this class, please obtain the proper Office of Student AccessAbility letter of accommodation and meet with the Director of OSA at the beginning of the semester.

NOTE: if the instructor records any part of the course, then the instructor will need to add the following syllabus statement:

The instructor may record meetings of this course. These recordings will be made available to all students registered for this class if the intent is to supplement the classroom experience. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law.

Course Topics

I. OVERVIEW AND INTRODUCTION

- Business Cycle Empirics
- Aggregate Demand, Aggregate Supply
- Rational Expectations and Micro-Foundations

II. THE REAL BUSINESS CYCLE. MODEL

- The frictionless model with efficient private outcomes
- A first approximation to a solution of the model and policy simulations

III. MONETARY THEORIES OF THE BUSINESS CYCLE

- Information Friction Models
- Nominal Rigidity Models & Dynamic Modeling of Price Adjustment
- The micro-founded New Keynesian Phillips Curve and the Aggregate Supply

IV. CONSUMPTION AND AGGREGATE DEMAND

- Modern Consumption Models
- Intertemporal consumption decisions, the Euler Equation, and the Aggregate Demand

V. MONETARY POLICY AND THE BASIC NEW KEYNESIAN MODEL

- Monetary policy frameworks: instrument rules vs. target rules
- Rules versus Discretion and Time Consistency of policy
- Formulation of basic New Keynesian Model, features, limitations, and extensions

VI. FINANCIAL FRICTIONS AND THE MACROECONOMY

- The effect of financial markets in the real macroeconomy
- Amplification of monetary policy transmission mechanism and the external finance premium
- Collateral prices, balance sheets effects, and the financial accelerator

VII. APPLICATIONS AND ADDITIONAL TOPICS IN MACROECONOMICS

(To be explored as much as time allows)

- Solution methods in macroeconomics
- Computational applications
- Group presentations

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the professor and, if done, will be announced during the lecture