DEPARTMENT OF ECONOMICS
ECON 602: MACROECONOMIC THEORY I

Fall 2024

CONTACT HOUR DETAILS

Professor: Caroline Betts (until 10/17/2024)
Office hours: By appointment, Tuesdays and Thursdays, KAP 316c
Contact email: cbetts@usc.edu (I aim to respond within 24 hours)

Professor: Monica Morlacco (from 10/22/2024)
Office hours: By appointment, TBD
Contact email: morlacco@usc.edu

Class time: KAP 319, Tuesday, Thursday, 12.00–1.50 p.m.

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TA office: TBD
TA contact email: sd59576@usc.edu
TA office hours: TBD
Discussion sessions: TBD

COURSE DESCRIPTION AND GOALS

This course equips students with some essential analytical and computational tools for studying modern macroeconomics. The goal of the course is to prepare students for further graduate study and research in macroeconomics. We introduce two workhorse dynamic general equilibrium models of modern macroeconomic theory–the neoclassical growth model and the overlapping-generations model–and develop techniques needed to solve and analyze them. We apply variants of the workhorse models to study long-run economic growth, as well as technological change, great depressions, wealth inequality, and structural change.

The course emphasizes student learning-by-doing through problem solving. In addition to the two, one hour and fifty-minute lectures per week provided by the instructor, the teaching assistant supervises discussion and computation sessions. Homework assignments involve analytical as well as some data analysis and computational exercises. Students should aim to be fluent in at least one programming language for computational exercises by the end of the semester. Temporal synchronization of the lecture material and the discussion session material is sought, although is neither essential nor always possible. We

strongly encourage students to work together in solving assignment problems and in preparation for exams. However, the written assignments and any other work that you submit must be yours alone.

Although there is no single required textbook that is suitable for the course, a selection of textbook and online lecture note references are useful. The instructor's lecture notes form the basis of the course, a summary of which constitutes the power point slides presented in lectures, and these are periodically supplied to students.

TEXTBOOKS

Textbooks useful for the course, from each of which we will select some chapters, are

1. *Recursive Macroeconomic Theory* (Lars Ljungqvist and Thomas J. Sargent), fourth edition, MIT Press (2018).
   (Exercises and solutions for the first edition are available, and can be used
   for practice, at this link: https://pages.stern.nyu.edu/~svnieuwe/pdfs/masterex.pdf)

2. *Recursive Methods in Economic Dynamics* (Nancy L. Stokey and Robert E. Lucas with Edward C. Prescott) Harvard University Press (1989)

These books will also be useful in the second semester, in preparing for your core examinations, and are good references to basic theory for any macroeconomist.

3. *Numerical Methods for Macroeconomists with Julia and Matlab codes* (Jeremy Greenwood and Ricardo Marto), online version:
   https://www.ricardomarto.com/files/NM4M.pdf

This is a helpful reference, covering some interesting macroeconomic models and issues and providing computational "assists" for those new to Matlab and Julia.

PROBLEM SETS AND ATTENDANCE

Students will complete approximately six problem sets throughout the semester. These are graded and returned. The teaching assistant presents solutions in discussion sessions and will supply answer guides subsequently that he makes available through Blackboard. Please sign into Blackboard as soon as you receive this syllabus, as it is the primary mode for communication in the course. Students must submit all the problem sets, and complete both examinations, for the instructor to award a complete final grade for the course. Attendance of lectures and TA discussion sessions is expected of graduate students. No accommodations will be made by the instructor or TA for material students miss due to non-attendance.

Since analytical thinking skills are a learning outcome of this course, all submitted assignments should be prepared by the student working individually. Students may not have another person or entity complete any substantive portion of the assignment.

Developing strong analytical and problem-solving skills will prepare you for a competitive workplace. Therefore, using AI-generated tools is prohibited in this course, will be identified as plagiarism, and will be reported to the Office of Academic Integrity.

EXAMINATIONS

There will be a midterm examination, on **Thursday October 17th from 12pm to 1.50pm,** and a final examination on **Tuesday December 17th from 11am to 1pm**. If you cannot attend the midterm or final examination due to a verifiable medical emergency, then we will assign a makeup examination. If you cannot attend an examination for any other reason, a grade of 0 will be assigned to that paper. The final examination is not cumulative.

EVALUATION

The exact breakdown of the evaluation of each student's work in the course is as follows, and is immutable:

Problem Sets:	30% (roughly 5% per problem set)
Midterm:	35% (first seven weeks)
Final Exam:	35% (last eight weeks)

Assignments should be submitted to the teaching assistant on or before the deadline specified on the assignment, and through a mode that the teaching assistant chooses and communicates to students during the first week of the semester.

ACADEMIC CONDUCT

The University of Southern California is foremost a learning community committed to fostering successful scholars and researchers dedicated to the pursuit of knowledge and the transmission of ideas. Academic misconduct contrasts with the university's mission to educate students through a broad array of first-rank academic, professional, and extracurricular programs and includes any act of dishonesty in the submission of academic work (either in draft or final form).

This course will follow the expectations for academic integrity as stated in the USC Student Handbook. All students are expected to submit assignments that are original work and prepared specifically for the course/section in this academic term. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s). Students suspected of engaging in academic misconduct will be reported to the Office of Academic Integrity.

Other violations of academic misconduct include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

Academic dishonesty has a far-reaching impact and is considered a serious offense against the university. Violations will result in a grade penalty, such as a failing grade on the assignment or in the course, and disciplinary action from the university itself, such as suspension or even expulsion.

For more information about academic integrity see the student handbook or the Office of Academic Integrity's website, and university policies on Research and Scholarship Misconduct.

Please ask your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment or what information requires citation and/or attribution.

SUPPORT SYSTEMS

Students and Disability Accommodations:
USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Student Financial Aid and Satisfactory Academic Progress:
To be eligible for certain kinds of financial aid, students are required to maintain Satisfactory Academic Progress (SAP) toward their degree objectives. Visit the Financial Aid Office webpage for undergraduate- and graduate-level SAP eligibility requirements and the appeals process.

Other Support Systems:
Counseling and Mental Health - *(213) 740-9355 – 24/7 on call*
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

988 Suicide and Crisis Lifeline - *988 for both calls and text messages – 24/7 on call*
The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline consists of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services

(though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL) – 24/7 on call
Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

Office for Equity, Equal Opportunity, and Title IX (EEO-TIX) - (213) 740-5086
Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-2500
Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

The Office of Student Accessibility Services (OSAS) - (213) 740-0776
OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

USC Campus Support and Intervention - (213) 740-0411
Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity, Equity and Inclusion - (213) 740-2101
Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call
Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-1200 – 24/7 on call
Non-emergency assistance or information.

Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)
A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

Occupational Therapy Faculty Practice - (323) 442-2850 or otfp@med.usc.edu

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.

COURSE CONTENT DISTRIBUTION AND SYNCHRONOUS SESSION RECORDINGS

USC has policies that prohibit recording and distribution of any synchronous and asynchronous course content outside of the learning environment.

Recording a university class without the express permission of the instructor and announcement to the class, or unless conducted pursuant to an Office of Student Accessibility Services (OSAS) accommodation. Recording can inhibit free discussion in the future, and thus infringe on the academic freedom of other students as well as the instructor. ([Living our Unifying Values: The USC Student Handbook](), page 13).

Distribution or use of notes, recordings, exams, or other intellectual property, based on university classes or lectures without the express permission of the instructor for purposes other than individual or group study. This includes but is not limited to providing materials for distribution by services publishing course materials. This restriction on unauthorized use also applies to all information, which had been distributed to students or in any way had been displayed for use in relation to the class, whether obtained in class, via email, on the internet, or via any other media. Distributing course material without the instructor's permission will be presumed to be an intentional act to facilitate or enable academic dishonestly and is strictly prohibited. ([Living our Unifying Values: The USC Student Handbook](), page 13).

COURSE OUTLINE AND READINGS

PART I

1. INFINITELY LIVED AGENT MODEL

Week 1   Infinite horizon pure exchange economy set-up
Arrow-Debreu environment and equilibrium
Reading: lecture notes 1

Week 2   Pareto-efficiency of equilibrium
Negishi's algorithm
Reading: lecture notes 2

Week 3   Sequential markets equilibrium
Equivalence of Arrow-Debreu and sequential markets
Reading: lecture notes 3

Additional Readings

Lecture notes Chapter 2 by Dirk Krueger
Llungqvist and Sargent, Chapter 8
Negishi, T. (1960) "Welfare Economics and Existence of an Equilibrium for a Competitive Economy", *Metroeconomica* **12** 92-97
Kehoe, T. (1989) "Inter-temporal General Equilibrium Models", in F. Hahn (ed.) *The Economics of Missing Markets* Clarendon Press

2. THE OVERLAPPING GENERATIONS MODEL

Week 4   Pure exchange overlapping generations economy set-up
Arrow-Debreu and sequential markets equilibria
Reading: lecture notes 4

Week 5   Offer curve analysis, and stationary and dynamical equilibria
Autarkic equilibrium and its efficiency properties
Reading: lecture notes 5

Week 6   Monetary and non-monetary equilibria
Welfare properties of equilibria
Reading: lecture notes 6

Week 7   Production in the overlapping generations economy
                Reading: lecture notes 7

Additional Readings

Lecture notes Chapters 8 and 9 by Dirk Krueger
Ljungqvist and Sargent, Chapters 9 and 10
Sargent, Chapter 7
Stokey et al., Chapter 17
T. J. Kehoe (1989) "Intertemporal General Equilibrium Models," in F.
Hahn, editor, *The Economics of Missing Markets, Information, and Games*
Claredon Press, 363–393
P. A. Samuelson (1958) "An Exact Consumption Loan Model of Interest,
With or Without the Social Contrivance of Money*," Journal of Political
Economy* **66** 467– 482
N. Wallace (1980) "The Overlapping Generations Model of Fiat Money,"
in J. H. Kareken and N. Wallace, editors, *Models of Monetary Economies*,
Federal Reserve Bank of Minneapolis

PART II (Tentative)

3. DYNAMIC PROGRAMMING

Week 8   Dynamic Programming
                Reading: lecture notes

4. CONSUMPTION AND SAVINGS

Week 9   The Complete-Markets Model
                 Implementation through Sequential Trading
                 Reading: lecture notes

Week 10   The Incomplete-Markets Model
                 Ricardian Equivalence
                 Reading: lecture notes

Week 11   Precautionary Savings
                 Reading: lecture notes

5. GROWTH THEORY

Week 12   Data, Cross-country differences, Solow Model
Reading: lecture notes

Week 13   The Neoclassical Growth Model: Decentralization + Planner
Reading: lecture notes

Week 14   Exogenous and Endogenous Growth
Reading: lecture notes

Additional Readings
TBD