

DEPARTMENT OF ECONOMICS
MACROECONOMIC THEORY I
Syllabus 2016

Professor:	Caroline Betts
Office Hours:	Tuesday, Thursday 11.00am – 12.00pm
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OVERVIEW

This course equips students with some essential theoretical and computational tools used to study the issues of interest to macroeconomists. We introduce two workhorse models of modern macroeconomic theory – the infinite horizon neoclassical growth model and the overlapping generations model. The techniques of dynamic general equilibrium theory that are needed to analyze these models are developed, techniques which constitute the core material of the course and prepare students for further graduate study and research in macroeconomics. We apply variants of the two models and the methods learned to study the sources and features of long-run economic growth, some fiscal policy issues including the choice of debt vs. tax financing of expenditure, and the origins of money and social security. Student learning by doing through problem solving is emphasized. In addition to the two lectures per week, an outline of which is provided below, there are regular discussion and computer programming sessions supervised by the graduate teaching assistant in which problems are solved, and written homework assignments involve analytical and computational exercises. Temporal synchronization of the lecture material and the discussion session material is sought, although that is neither essential nor always possible. Although there is no required textbook that is suitable for the course, a selection of textbook references is provided for most sections of the course from which you can choose, and the lectures also rely quite heavily on a widely distributed manuscript of lectures by Dirk Krueger.

TEXTBOOKS

The optional textbooks for the course, from which we will use some specific chapters are,

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

2. *Dynamic Macroeconomic Theory* (Thomas J. Sargent) Harvard University Press (1987)
3. *Recursive Macroeconomic Theory* (Lars Ljungqvist and Thomas J. Sargent), third edition, MIT Press (2012).

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.

PROBLEM SETS

There will be five or six problem sets assigned throughout the semester which will be graded and returned. Some of the problems require written and mathematical analysis; others will involve numerical and computational analysis. Answers will either be provided in TA discussion sessions, or in answer guides that will be made available through Blackboard. (Please sign on to Blackboard as soon as you receive this syllabus, as it is the primary mode for communication in the course.) Students are encouraged to work together in solving the problem sets. However, each problem set submitted for grading must ultimately be a student's own work. i.e. copying of problem sets is prohibited. All problem sets must be submitted in order for a final grade for the course to be assigned.

EXAMINATIONS

There will be a midterm examination, on **Tuesday, October 11th** in class time, and a final examination on **Tuesday December 13th from 11am to 1pm**. If you cannot attend the midterm due to a verifiable medical emergency, then a makeup examination will be scheduled as soon as possible. If you cannot attend the midterm for any other reason, a grade of 0 will be assigned to the midterm. If you cannot attend the final examination due to a verifiable medical emergency, then a makeup examination will be scheduled as soon as possible; if you cannot attend the final exam for any other reason, a grade of 0 will be assigned to the final exam.

EVALUATION

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

Problem Sets:	30%
Midterm:	35%
Final Exam:	35%

No exceptions will be made to this allocation towards your final grade. The final examination is *not* cumulative.

ACADEMIC ACCOMMODATIONS

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me as early as possible in the semester. DSP is located in STU 301, and is open 8.30am-5.00pm, Monday through Friday. The phone number for DSP is (213) 740-0776.

ACADEMIC DISHONESTY

I refer you to the University's guidelines on academic integrity for students. Be aware that the penalties for graduate students are generally stricter than those for undergraduate students. You are all subject to these guidelines, and in the event of any violation I would seek the strongest possible penalty.

COURSE OUTLINE

I. DYNAMIC COMPETITIVE GENERAL EQUILIBRIUM

Infinite horizon pure exchange economy
Arrow-Debreu equilibrium
Sequential markets equilibrium
Pareto efficient allocations
Welfare Theorems and Negishi's algorithm

Lecture notes #2 by Dirk Krueger
Llungqvist and Sargent, Chapter 7 (possibly to be revised)
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

II. THE NEOCLASSICAL GROWTH MODEL

Infinite horizon production economy
Dynamic programming
Pareto efficient allocations, using sequential and recursive methods
Recursive competitive equilibrium

Lecture notes #3 by Dirk Krueger (#4 and #5 optional but recommended)

Ljungqvist and Sargent, Chapters 2 through 4 and Chapter 11 (possibly to be revised)

Stokey and Lucas, Chapters 2 through 6

Sargent, Chapter 1

R. M. Solow, Growth Theory: An Exposition. Oxford: Clarendon Press, (1970)

III. EXOGENOUS AND ENDOGENOUS GROWTH

Growth facts

An exogenous growth model

The AK Model

Human capital models of endogenous growth

Research and development models

Readings

Ljungqvist and Sargent, Chapter 11 (possibly to be revised)

Lucas, R.E. Jr. "On the Mechanics of Economic Development", Journal of Monetary Economics (22) (1988) 3-42

Romer, Paul M. "Increasing Returns and Long-Run Growth," Journal of Political Economy (94) (1986) 1002-1037

Romer, Paul M. "Growth Based on Increasing Returns Due to Specialization", American Economic Review Papers and Proceedings (77) (1987) 56-62

Rebelo, Sergio "Long-Run Policy Analysis and Long-Run Growth," Journal of Political Economy (99) (1991) 500-521

IV. THE OVERLAPPING GENERATIONS MODEL

Pure exchange economy

Monetary equilibria

Social Security

Economy with production and growth

Ricardian Equivalence and comparison to infinite horizon economy

Readings

Lecture notes #8 and #9 by Krueger

Ljungqvist and Sargent, Chapter 8 (or 9, depending on edition)

Sargent, Chapter 7.

Stokey et al., Chapter 17.

P. A. Diamond, "National Debt in a Neo-Classical Growth Model," American Economic Review, 55 (1965), 1126-1150.

T. J. Kehoe, "Intertemporal General Equilibrium Models," in F. Hahn, editor, *The Economics of Missing Markets, Information, and Games*. Claredon Press, 1989, 363–393.

P. A. Samuelson, "An Exact Consumption Loan Model of Interest, With or Without the Social Contrivance of Money," *Journal of Political Economy*, 66 (1958), 467– 482.

N. Wallace, "The Overlapping Generations Model of Fiat Money," in J. H. Kareken and N. Wallace, editors, *Models of Monetary Economies*, Federal Reserve Bank of Minneapolis, (1980)