Recursive Methods in Macroeconomics

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**Summary**
This is a PhD course on recursive methods used in modern macroeconomics. Recursive representations of macroeconomic models are useful because they are parsimonious and allow the computer to be used to solve for the equilibrium and the dynamics of the model.

**Content**
The course will focus on six model economies and you will learn how to write these models in recursive form, characterize the equilibrium and compute it. The course is structured in six lectures (morning), each followed by an exercise sessions (afternoon) where you will learn numerical methods to solve for the equilibrium of the model presented in the lecture. We will use Matlab as our main programming language.

The course has no prerequisites and most concepts will be introduced during the course. Nevertheless, prior knowledge of economics will be useful.

**Learning Prerequisites**

**Important concepts to start the course**
Lectures will take place on Wednesday, 9:15 to 12:00 in ODY -10019.1; exercises will take place after lectures, 13:15 to 16:00 in the same room. Lunch will be provided between lecture and exercise session. Students will have to bring their own laptop (with a recent version of Matlab including the symbolic toolbox) to exercise sessions. Exercise time will focus on working on the problem sets, doing exercises and going over some class material. Teaching assistants will not solve problem sets for students but help them.

This is a 4-credit course over 6 weeks, which is equivalent to 9.5 hours of work per week (including class and exercise time). You should not expect to complete your assignment during exercise time.

**Assessment methods**

Problem sets 100%
Problem sets will be given out after the lecture on Wednesday and need to be returned to the instructors at the beginning of class the following Wednesday. The solution to the problem set will be posted on the class web page after class. Late problem sets are not accepted. Students are expected to work independently on their problem sets, unless otherwise stated. Copied problem sets will receive a score of zero. Every student should turn in her/his problem set.

**Resources**

**Bibliography**
The course will rely on journal articles and lectures notes. You can find a list of relevant reading material below. Lectures, problem sets, solutions to problem sets and additional material will all be posted on the course web page.


**Ressources en bibliothèque**

- Heathcote / Financial Autarky and International Business Cycles
- Heathcote / Assessing International Efficiency
- Stockman / Tastes and Technology in a Two-Country Model of the Business Cycle
- Gertle / Financial Intermediation and Credit Policyin Business Cycle Analysis
- Nuño / Bank Leverage Systems
- Tobias / Procyclical Leverage and Value-at-Risk
- Angeloni / Capital regulation and monetary policy with fragile banks
- Gali / Monetary Policy, Inflation, and the Business Cycle
- Barsky / Sticky-Price Models and Durable Goods
- Ercge / Optimla Monetary Policy With Durable Consumption Goods
- Monacelli / New Keynesian Models, Durable Goods, and Collateral Constraint
- Iacoviello / Housing Market Spillovers: Evidence from an Estimated DSGE Model
- Forlati / Risky Mortgages in a DSGE Model
- Guerrieri / Occbin: A Toolkit for Solving Dynamic Models with Occasionally Binding Constraints Easily
- Holden / Computation of solutions to Dynamic Models with Occasionally Binding Constraints