

Dynamic Economics
Graduate School in Economics and Management
PhD in Economics

Mario Padula*

1 Summary of the course

The course will endow the students with the standard solution methods for dynamic economic models under uncertainty. The main focus will be on tools. Applications will deal primarily with macroeconomic models, with rational expectation optimizing agents. Students will be able to use a matrix language software, such as Octave, and depending on the applications, a high level language, such as Fortran.

2 Syllabus

1. Review of the theory of dynamic programming: the nonstochastic and the stochastic case
2. Basic numerical methods: value function iterations, policy iterations, projection methods and endogenous grid-point algorithm
3. Some relevant econometrics: generalized method of moments, maximum likelihood and simulation based methods
4. The stochastic growth model
5. Consumption
6. Durable consumption
7. Investment

3 Reading list

- Jérôme Adda and Russel Cooper, 2003, “Dynamic Economics” , MIT Press.
- Lars Ljungqvist and Thomas Sargent, 2004, “Recursive Macroeconomic Theory,” 2nd edition, MIT press.

*Università “Ca’ Foscari” di Venezia and CSEF

4 Exam

Students will be evaluated on a written exam, and on the basis of homeworks. The homeworks will deal with writing a piece of computer code to solve specific dynamic economic problem. The emphasis will be the numerical solution, but simulation and empirics will not be neglected.