UCL Université catholique de Louvain

LECON2600

2014-2015

Dynamical Methods in Economics

5.0 credits	30.0 h	1q

Teacher(s) :	Oikonomou Rigas ;
Language :	Anglais
Place of the course	Louvain-la-Neuve
Main themes :	The lectures start with a short characterization of the dynamic systems encountered in economics (differential or difference systems, discrete and continuous time systems, stochastic or deterministic), and introduce to the reso-lution techniques, with a special emphasis on differential systems. Stability theory is then developed in detail, including some advanced materiel (Lyapunov theory, local and global stability, linearization and the Hartman-Grobman theorem, Barbashin-Krasovskii theorem, Barbalat lemma etc). The lack of stability may give rise to irregular and even strange dynamics, and the third part of the course precisely develops the techniques al-lowing to detect such complex dynamics (bifurcation theory mainly). The last lectures are devoted to dynamic optimisation tools: calculus of variations and optimal control, plus some elementary notions on dynamic pro-gramming.
Aims :	This course is designed to rigorously present the main methods needed to analyze the standard models of eco-nomic dynamics. It principally emphasizes three major sets of methods : those needed for a proper study of sta-bility of dynamic systems, those usually applied to detect complex dynamics, and finally the optimization techniques in dynamic frameworks (specially optimal control). The final assessment will require the assimila-tion of both the theoretical foundations and the applied aspects related to these methods. *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Content :	See previous outlines.
Other infos :	Mathematics and Statistics for Economists Written A Detailed bibiography will be given for each theme tackled along the way. By the professor, no assistant assigned.
Cycle and year of study :	> Master [120] in Statistics: General > Master [120] in Economics: General > Master [120] in Economics: Econometrics
Faculty or entity in charge:	ECON