



5 credits

30.0 h

Q1

Teacher(s)	Oikonomou Rigas ;
Language :	English
Place of the course	Louvain-la-Neuve
Main themes	<p>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 resolution techniques, with a special emphasis on differential systems. Stability theory is then developed in detail, including some advanced material (Lyapunov theory, local and global stability, linearization and the Hartman-Grobman theorem, Barbashin-Krasovskii theorem, Barbalat lemma etc</p> <p>). The lack of stability may give rise to irregular and even strange dynamics, and the third part of the course precisely develops the techniques allowing 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 programming.</p>
Aims	<p>This course is designed to rigorously present the main methods needed to analyze the standard models of economic dynamics. It principally emphasizes three major sets of methods : those needed for a proper study of stability 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 assimilation of both the theoretical foundations and the applied aspects related to these methods.</p> <p>1</p> <p>-----</p> <p><i>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".</i></p>
Content	See previous outlines.
Other infos	Mathematics and Statistics for Economists Written A Detailed bibliography will be given for each theme tackled along the way. By the professor, no assistant assigned.
Faculty or entity in charge	ECON

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Statistics: General	STAT2M	5		
Master [120] in Economics: Econometrics	ETRI2M	5		
Master [120] in Economics: General	ECON2M	5		